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WORLD'S LEADING PHOTOGRAPHIC MAGAZINE

The colorful sweeper is Miss Derval Walsh, one of New York's attractive younger models. The picture was made by Joseph Schneider in his studio, on Ektachrome with a Hasselblad camera fitted with 80-mm f/2.8 Ektar lens. The exposure was f/22 using Ascor Animation Speedlight. These lights do not need a recharging period, allowing pictures in rapid succession. Derval was so intent upon sweeping clean that the picture gained a true candid look.

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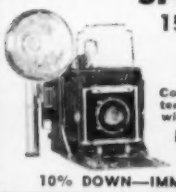

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LETTERS TO THE EDITOR

Since the Good Old Days

After living in Austria for more than two decades I might be able to explain to Mr. Robert F. Meagher (*Letters*, February 1956) the pre-war *Gemütlichkeit* in European photos. Many parts of Europe experienced hardship and terror and now desire peaceful photographic subjects. But Americans are so bombarded with advertisements, television, etc., that they only look at what is revealed quickly and obviously.

ERWIN HABERL
Hamilton, Ont., Canada

Through the Telescope

Here are two photographs which you may find interesting. One is a normal one, and the other is a telescopic shot taken from my porch. The telescopic shot was done after reading your article about photographing through binoculars. The telescope is home-made from surplus optics and bits of brass. The camera, a Rolleicord V and the 'scope were mounted on separate tripods and jockeyed into alignment by shifting tripod legs. The weather was cloudy and I shot at *f*/3.5 at a second.

Normal

Tele

J. LELAND BENSON
Topeka, Kansas

Who Fixed What, When?

In my article, "All About Electronic Flash," (January, 1956) I gratuitously, and it would now seem incorrectly, credited William Henry Fox Talbot with being the first to use hypo to fix a photographic image, information I garnered from a book whose author I would prefer not to embarrass as he is otherwise a very solid photocitizen. A reader, Theodore Greene, of Xenia, Ohio, wrote in to say that ". . . Herschel used this chemical in 1813 and published reports indicating its suitability as a fixing agent." Replying to Mr. Greene's communication in the *Letters* column (March, 1956) we admitted Sir John's priority in discovering the silver-salt dissolving properties of hyposulphite of soda, but maintained that it was Fox Talbot who first used this discovery to permanently fix a photographic image.

Upon further research into this matter, accidentally stimulated by the recent publication of Helmut Gernsheim's *History of Photography*, it seems that both Mr. Greene and this writer must stand in awe of the Reverend Joseph Bancroft Reade who used hypo to fix photographs before either of the distinguished gentlemen aforementioned.

Working entirely by himself *before 1839*, the Reverend Mr. Reade discovered hyposulphite of soda's ability to dissolve silver salts within the pages of William Thomas Brande's *Manual of Chemistry* and immediately applied this to the fixing of photographs and microphotographs. Mr. Gernsheim, whose *History of Photography* is admittedly written from a very strongly British point of view states that Reade "must be accorded priority in fixing with hyposulphite of soda, which has since been universally accepted as the only reliable fixing agent." Mr. J. M. Eder, whose *History of Photography* is written from an even stronger German point of view, apparently agrees, and this recognition would seem deserved.

Getting back to the Reverend Mr. Reade, this country parson seems to have invented a system of photography very similar to Fox Talbot's, including the use of gallic acid, although he was frank to admit later on that he didn't really understand what was going on, much before Fox Talbot. The latter, however, took out patents and published papers on *his* process, both activities eschewed by the Reverend Mr. Reade. The discovery of the photographic application of hypo within the pages of a chemistry text indicates the valuable things which can sometimes be gleaned from books, while this report indicates something quite different.

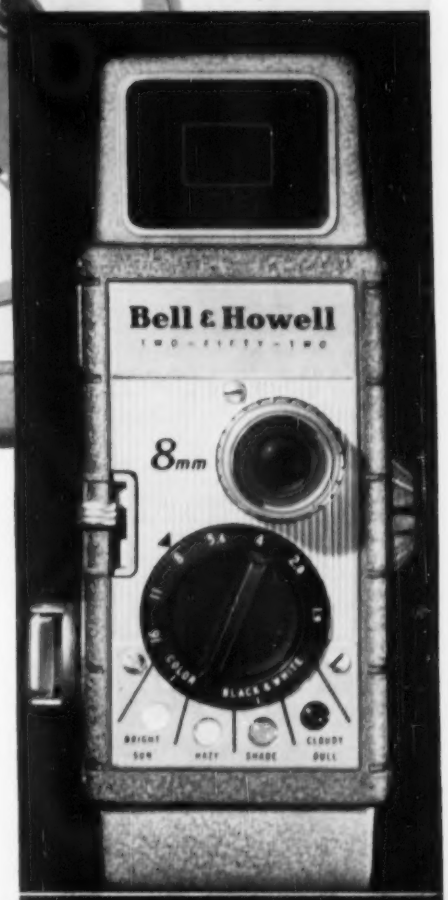
Bob Schwalberg
Contributing Editor

3-D Becomes 2-D

I believe a stereo camera can make a good 2-D picture. Here is an action shot taken with a Kodak stereo camera. I used Tri-X film, FR #2 electronic flash, and shot at *f*/5.6 from a distance of 14 feet.

One-and-a-half D

JOE LE HOA
Clarkesville, Georgia



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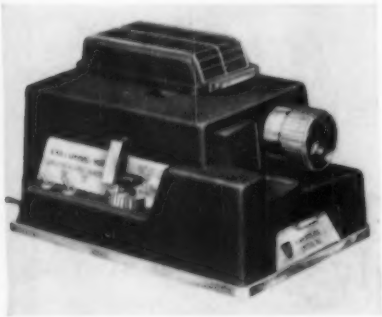
TOOLS AND TECHNIQUES

by Norman C. Lipton

A round-up of recent developments and significant trends

AO Executive Projectors. A unique and scientifically sound feature of the American Optical Company's new 300- and 500-watt Executive projectors for 2x2-inch slides is the so-called "filtered shutter" arrangement which throws a blue patch of light on the screen between slides—in place of the usual black-out. The viewer's eyes are thereby spared the necessity of adapting themselves to extremes of brightness which leads to fatigue and strain when more than a few slides are shown. A simple mechanical coupling with the semi-automatic slide-changing mechanism of the projector moves the filter into and out of the light path. In other respects, the two projectors in the new AO Executive line conform to the new trends of low-silhouette streamlined design and single-control semi-automatic slide changing that have been intriguing color-slide enthusiasts during the past few years. The changer inserts, returns, and refiles the slide and advances the slide tray to the next projection position as the control is operated. An illuminated indicator at the top of the projector housing shows the number of the slide being projected. The universal slide tray furnished with the projector holds 40 transparencies in any type mount—the end product of two full 20-exposure rolls of color film. A brand-new optical system incorporated in the Executive line includes a 5-inch $f/3.5$ lens in a heavy mount and a removable set of condensers which can be opened like book pages for cleaning. Price of the 300 model is $69.50; the 500, $76.50.



Low silhouette and self-contained mechanism, including semi-automatic slide changer, identify the new AO 300 and 500-watt projectors.

Kodachrome Processing. Ever since the processing of 35-mm Kodachrome and Kodacolor films was opened up to independent laboratories by E-K's famous consent decree, the identity of the organizations that would enter the field has been the subject of considerable interest. As of February 15, 1956, only one concern has been processing exposed Kodachrome film—Dynacolor Corporation, Brockport, New York. Working through dealers and photofinishers, Dynacolor handles 35-mm and Bantam rolls as well as 8- and 16-mm ciné film; a stereo-mounting service is also offered. Some time in the near future, Dynacolor expects to start handling Kodacolor film as well. One of the reasons for this quick start has been the concern's experience in the manufacture and processing of their own selective redevelopment type color film, which is similar to Kodachrome.

As far as futures are concerned, Berkey Photo Service of New York is planning to begin operations on Kodacolor some time this spring; Kodachrome, a little later . . . Pathecolor announced its expectation to get into Kodachrome processing by this coming summer . . . The Hollywood plant of Technicolor, Inc., hopes to be ready to handle 35-mm amateur Kodachrome some time in May, according to a recent announcement by Dr. Herbert T. Kalmus, president and general manager of the corporation . . . One of the most ambitious color processing plans was recently announced by Pavelle Color Incorporated, New York—a $1 million expansion covering Kodachrome as well as Kodacolor. They hope to have their Kodacolor operations under way by June 1956 with Kodachrome following soon afterward. Incidentally, Pavelle Color recently appointed as its company-wide plant manager Mr. Lyle O. Brown, who was a member of the top-management echelon of E-K's Kodachrome and color-print laboratory in Chicago for many years.

Royal Ortho Sheet Film. Shortly after the 1st of the year, several boxes of Kodak Royal Ortho Sheet Film were submitted to POPULAR PHOTOGRAPHY for evaluation. The covering letter from the Eastman Kodak Company stated that the film was rated at 200 ASA for daylight and 125 for tungsten lighting. We were advised to process the new film for the same times and temperatures as Kodak Royal Pan; that is, for a gamma of 0.7, 4 minutes at 68 F in DK-60a, or 5 minutes at 68 F in DK-50, or 8 minutes in DK-50 diluted 1:1 with water. A complete test procedure, using Kodak Royal Pan Sheet Film as a control for reference, was set up by our indefatigable technical asso-

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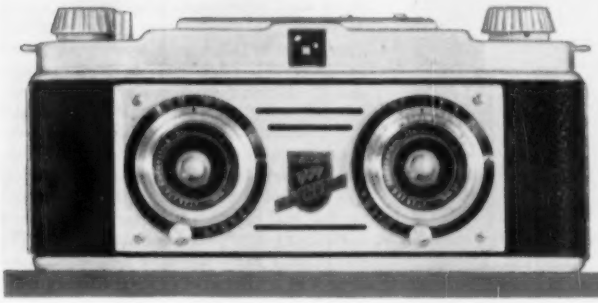

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"B"	5-lbs.	$60 more	$110.00	40	1000-1500	$16.00
"C"	4-lbs.	$21.50 more	$110.00	35.50	1000-1500	$16.00
"D"	3-lbs.	$28.50 more	$ 79.50	30	150-300	.80
"E"	5-lbs.	No	$ 79.50	30-45	1000	$ 8.00
"F"	4-lbs.	No	$ 99.50	50-60	1000-1500	$16.00

Lowest weight — Lowest cost of batteries — Lowest price!

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FR *Electronic Flash*

operates on only 4 "D"-size batteries or your AC house current

and still only $54.95

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Your Dealer will gladly fit an FR Electronic Flash to your camera.

E5-6 **THE FR CORPORATION** 951-P Brook Ave., NEW YORK 51, N. Y.

ciate, Bob Schwalberg. Exposures were made under daylight and controlled tungsten light of a model with a test chart incorporating gray scales and the additive and subtractive primary colors. Exposures were made at the recommended exposure indexes as well as at elevated indexes, developed for the specified immersion times in all three recommended developers; and also with extended development.

Our conclusion, after a careful examination of the test results was that Kodak Royal Ortho appears to be identical with Kodak Royal Pan Sheet Film except for its almost complete lack of sensitivity to red and orange reflected in its slightly lower tungsten exposure index (125 instead of 160, the Pan rating). The orthochromatic sensitization doesn't seem to detract in any measurable way from the over-all high speed and the wide exposure and processing latitude obtained with Royal Pan film, or with the "pushability" to extreme emulsion speeds that results from extended development. Obviously, the new Royal Ortho emulsion will be welcomed by workers who are used to getting optimum results by developing their negatives by inspection under red ortho safelighting and also by portrait specialists who prefer the accentuated skin textures produced by orthochromatic film.

Low-Cost Speedlight. If electronic flash is ever to take its place as a completely portable amateur light source replacing the expendable flashbulb, it will have to be as inexpensive as comparable B-C flash equipment and almost as compact. In recent years, the cost factor has been steadily whittled down by improvements in electronic circuitry and components and inventive design. (The size, cost, and efficiency of modern speedlight equipment would have been considered improbable eight years ago.) A recent significant development in breaking through the cost barrier has been the appearance on the market of a compact a-c powered speedlight unit priced at only $19.95. This is the first time we have had a complete unit including a camera-mounting bracket and connecting cord which could be obtained over-the-counter in completely assembled form for less than $20.

The history-making outfit is the Eva-Light Speedlight, manufactured to the specifications of Peerless Camera Stores, New York City, exclusive source of the equipment. All of the component parts are contained in an integral housing behind the flashtube and reflector. The unit is mounted on the camera either by means of a bracket that slips into the accessory shoe atop most conventional eye-level operating cameras or, a straight universal bracket that is attached to the tripod socket of the camera. Effective flash duration is 1/1000 second; recycling time between flashes, 5 seconds; time delay, "zero" type, suitable for all cameras with "X" synchronization. The power cord which connects the unit to any 115-volt a-c electric line is only six feet long, but it can be attached to ordinary household extension cord of any practical length to permit the unit's operation at any reason-

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When a serious photographer attains his objective—owning an Exakta VX—he has the most versatile camera in the world. With it he can photograph a subject as far as the moon or as near as a microbe. Each lens and accessory that he adds extends the camera's versatility without requiring auxiliary equipment. So, owning an Exakta VX is more than just picture taking. It's an exciting venture called Exakta Photography. It's exploring a revolutionary system of photography, the single-lens reflex system, that gives you perfect assurance you will get the exact picture you see in the viewfinder. It means photo satisfaction, pictures you will show with pride. We invite you to visit your dealer today and ask him to show you the Exakta VX and any of the equipment shown above or to write to us for more information.

The Exakta VX is available with Penta Prism & Split-image Rangefinder and:

58-mm., f/2.0 Zeiss Biotar with Automatic Diaphragm	$392.00
50-mm., f/1.9 Schneider Xenon with Automatic Diaphragm	398.70
50-mm., f/2.0 Isco Westagon with Automatic Diaphragm	336.50
50-mm., f/2.8 Isco Westanar with Automatic Diaphragm	296.50
75-mm., f/1.5 Zeiss Biotar with Preset Diaphragm	450.00
75-mm., f/1.9 Meyer Primoplan with Preset Diaphragm	356.50
50-mm., f/1.5 Angenieux S21 with Preset Diaphragm	416.50
50-mm., f/2.8 Zeiss Tessar with Preset Diaphragm	326.50
50-mm., f/3.5 Zeiss Tessar with Standard Diaphragm	286.50

If you are an Exakta owner and did not receive the New, 32-page Catalog titled, "Exakta Continued" (Vol. 2), write to us today for your copy.

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Exclusive Factory Appointed Representatives in the U.S.A. for Sales & Service of Exakta and Exa Cameras

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Hitch your wagon to the star! . . .
1956 CONTAX II-A and III-A

ZEISS IKON

Single-window for rangefinder and viewfinder, metal focal plane shutter, removable back, bayonet lens mount, delayed action release, full built-in flash synchronization are just a few of the reasons for the acknowledged leadership of CONTAX! Contax II-A with Tessar coated f/3.5 lens **$261. Cash or $26.10 Down**; with Sonnar coated f/2.0 lens **$345. Cash or $34.50 Down**; or with Sonnar coated f/1.5 lens **$374. Cash or $37.40 Down.** For Contax III-A (with built-in exposure meter) add **$38. Cash or $3.80 Down.**

Selected Contax Lenses and Accessories

Biogon 21mm f/4.5	$249.00 Cash or $24.90 Down
Biogon 35mm f/2.8	183.00 Cash or 18.30 Down
Planar 35mm f/3.5	102.00 Cash or 10.20 Down
Triotar 85mm f/4.0	106.00 Cash or 10.60 Down
Sonnar 85mm f/2.0	229.00 Cash or 22.90 Down
Sonnar 135mm f/4.0	146.00 Cash or 14.60 Down
Stereotar C, 35mm f/3.5's	159.00 Cash or 15.90 Down
Stereo Prism Attachment	37.00 Cash or 3.70 Down
Stereo Viewfinder	10.00 Cash or 1.00 Down

1956 ▲ IKOFLEX

Ikoflex I-A with Novar coated f/3.5 lens in Prontor full synch' shutter **$76. Cash or $7.60 Down**; Ikoflex I-A with Tessar coated f/3.5 lens in Prontor full synch' shutter **$96. Cash or $9.60 Down**; and the superlative **Automatic Ikoflex II-A** with Tessar coated f/3.5 lens in Synchro-Compur MX shutter **$126. Cash or $12.60 Down.**

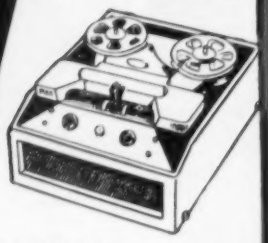
1956 CONTAFLEX

The gem of all 35mm Single Lens Reflex cameras! Ground-glass eye-level focusing is combined with split image rangefinder. Superb Tessar 45mm coated f/2.8 lens with fully automatic diaphragm. Contaflex I **$169. Cash or $16.90 Down**; Contaflex II (Built-in meter) **$199. Cash or $19.90 Down.**

Just released! . . . Brand new 1956 CLIPPER THE SUPERB Pentron PORTABLE TAPE RECORDER

With Exclusive MONOMATIC* CONTROL

MONOMATIC is a single knob control providing instant selection of Record or Play, in either 7½" or 3¾" tape speeds, as well as Fast Forward and Fast Rewind. Any position may be selected by a flick of the finger, in either tape speed.



The CLIPPER
(Don't confuse with discontinued models)
Regularly $139.50. **Now,** from D. F. A., **only $109.50**

Cash or $10.25 Down

- **Plays in any position!**
- **Simplest to operate**
- **High fidelity performance**
- **2-speed, 2-hour operation**

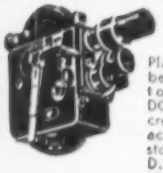
DOWLING'S Fifth Avenue also features
Pentron Multi-speed Portable Tape Recorder.
$189.50 Cash or $18.95 Down
Pentron 3 Speaker High Fidelity Tape Recorder for life-like dimensional presence.
$225.00 Cash or $22.50 Down

Hi-fi enthusiasts! Write D. F. A. for free brochure on Pentron low cost hi-fi tape components for portable use and custom installations!

A Cordial Invitation...

No doubt about the ease of shopping by mail! . . . But it is nice to meet personally our mail order friends. Whether to say "hello" or to talk cameras, you'll find a warm welcome! Our Mail Order Division is on the 20th Floor (Skyline Suite) of that famous landmark, the Flatiron Building . . . The panoramic view of New York is most photogenic. When you are in our home town, please do stop in!

IT'S ECONOMY TO START WITH THE FINEST!



Good movie equipment is a lifetime investment. Because of D.F.A.'s Easy Payment Plan, **you** can afford to own the **best now!** You'll find it pleasant to shop by mail from DOWLING'S Fifth Avenue. Quick, confidential credit arrangements plus fast, personalized service actually may bring us "closer" to you than a local store. **Wherever** you may live, you'll find that D.F.A. means immediate service!

Bolex C-8 with Lytar coated f/2.5 lens	$89.95 Cash or $8.95 Down
Bolex C-8 with Lytar coated f/1.9 lens	129.95 Cash or 12.95 Down
Bolex B-8 with Yvar coated f/2.8 lens	119.50 Cash or 11.95 Down
Bolex B-8 with Lytar coated f/1.9 lens	149.50 Cash or 14.95 Down
Bolex B-8 with Switar coated f/1.5 lens and Yvar 1½" (telephoto) coated f/2.8 lens	274.50 Cash or 27.45 Down
Bolex H-8 Leader with Lytar coated f/1.9 lens	259.50 Cash or 25.95 Down
Bolex H-8 De Luxe with Switar coated f/1.5 lens	438.25 Cash or 43.82 Down
Bolex H-16 Leader with Lytar coated f/1.9 lens	269.50 Cash or 26.95 Down
Bolex H-16 Supreme w/Lytar coated f/1.9 lens	394.00 Cash or 34.90 Down
Bolex H-16 Supreme w/Switar coated f/1.4 lens	510.00 Cash or 51.00 Down
Bolex H-16 Supreme with Switar coated f/1.4 lens, Switar 16mm coated f/1.8 lens, Switar 50mm coated f/1.4 lens & deluxe H-1 case complete	779.00 Cash or 77.90 Down
Pan Cinor Zoom coated f/2.8 lens (for 8mm)	219.50 Cash or 21.95 Down
Pan Cinor Zoom coated f/2.8 lens (for 16mm)	349.50 Cash or 34.95 Down
Bolex Stereo System **complete**	387.00 Cash or 38.70 Down
Bolex Electric Camera Drive	89.50 Cash or 8.95 Down
Bolex Tripod	69.50 Cash or 6.95 Down
Bolex Titler and Special Effects Kit	299.50 Cash or 29.95 Down
Bolex M-8 Projector with case	169.50 Cash or 16.95 Down
Bolex Combination G8mm-16mm Projector	339.50 Cash or 33.95 Down

Bolex maillard

Just out! – 2 superb new Pan Cinor DIRECT THROUGH-THE-LENS VIEWING zoom lenses for 16mm cameras . . . Pan Cinor-70 (17.5 to 70mm) . . . 449.50 Cash or 44.95 Down; Pan Cinor-100 (25 to 100mm). 750.00 Cash or 75.00 Down.

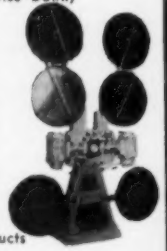
UHLER Cine Printers
. . . the standard of perfection!

Uhler 16mm Sound Cine Printer! (illustrated)

Makes contact prints of both sound and silent pictures in black and white or color. Prints picture and sound at the same time. 400' capacity; beautiful precision finish. Copies of all your favorite films can be made at about one-quarter the cost of the original. It's easy and lots of fun to make your own prints at home. Titles may be made with double exposed motion background as shown in theatres. Complete instructions are furnished with each machine.

$125. Cash or $12.50 Down
◀ (Uhler 16mm Silent Cine Printer, **$95. Cash or $9.50 Down**)

Uhler Combination 8mm and 16mm Continuous Printer ▶ (illustrated)



For professional or amateur movie makers, laboratories, schools and technicians—where the highest quality prints are required. Black and white or color; single or double system sound — film is run through the machine once only. 1200' capacity. Printing speed up to 1600' per hour. Lamps are air-cooled. Built-in filter holder for color film printing.

$685. Cash or $68.50 Down

Other Uhler Precision Cine Products

Combination 35mm Continuous Printer for Sound or Silent Pictures (capacity — 6-1200' feed and take-up discs)	$1145.00 Cash or $114.50 Down
Reduction and Enlarging Printer for 8mm and 16mm (1200' capacity)	1056.88 Cash or 105.68 Down
Reduction and Enlarging Printer for 16mm and 35mm (capacity — 4-1200' feed and take-up discs)	2475.00 Cash or 247.50 Down

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1956 Keystone Olympic Turret 8mm

Triple turret gives Hollywood versatility on inexpensive roll film! With coated f/2.5 lens **$99.95 Cash or $9.95 Down**; or with coated f/1.9 lens (focusing) **$119.50 Cash or $11.95 Down.**

1956 Keystone Bel Air 8mm

Magazine loading. Zoom-type finder, including wide angle. Speeds from 12 to 48 frames. With coated f/2.5 lens **$94.95 Cash or $9.49 Down**; or with coated f/1.9 lens **$104.50 Cash or $10.45 Down.**

1956 Keystone Capri 8mm

Handsome . . . easy to use. Drop-in roll film loading; interchangeable lens mount. With coated f/2.5 lens **$49.95 Cash or $4.95 Down**; or with coated f/1.9 lens only **$59.95 Cash or $5.99 Down!**

Just out! 1956 Keystone Newport Turret 16mm

100' film capacity; 7 speeds; parallax correcting Zoom finder accommodating even ½" wide angle! With coated f/2.5 lens **$134.50 Cash or $13.45 Down**; or with coated f/1.5 lens (focusing) **$199.50 Cash or $19.95 Down.**

1956 Keystone Criterion Turret 16mm

Lightest, smallest 16mm 100 ft. capacity turret made! 7 speeds; audible indicator; takes single or double perforated film! With coated f/2.5 lens **$114.50 Cash or $11.45 Down**; or with coated f/1.9 lens (focusing) **$169.50 Cash or $16.95 Down.**

1956 Keystone Mayfair 16mm

Magazine loading, marksman finder, 4 speeds and other PLUS features make this a winner! With coated f/2.5 lens **$139.50 Cash or $13.95 Down**; or with coated f/1.9 lens (focusing) **$169.50 Cash or $16.95 Down.**

1956 Keystone Regal 8mm

750 watt; Lite-O-Matic control. Built-in splicer and viewer! **Including case $159.50 Cash or $15.95 Down. Magna-scope model**

1956 Keystone 8mm "95"

Brilliant 750 watt illumination; typical Keystone smoothness! **Including case only $129.50 Cash or $12.95 Down.**

1956 Keystone Brightbeam 8mm

Superior 500 watt quality and amazingly priced! Only **$64.95 Cash or $6.49 Down**; Case, if desired, **$10. Cash or $1. Down.**

1956 Keystone Belmont 16mm

750 watt; Lite-O-Matic control. Built-in splicer and viewer! **Including case $159.50 Cash or $15.95 Down. Magna-scope model**

1956 Keystone Continental 16mm

Unique in price and features: Brilliant 750 watt performance. **Including case only $139.50 Cash or $13.95 Down.**

Write Dowling's Fifth Avenue today for complete free Keystone brochure and price list!

COMPLETE 1956 Keystone 8MM PACKAGE!

Includes all the essentials for movie making and home movie projection! You can't miss — start that record of your kids or vacation now!

- KEYSTONE CAPRI 8mm Camera with coated f/1.9 lens
- KEYSTONE BRIGHTBEAM 500 watt 8mm Projector
- Radiant glass-beaded "Hy-Flect" Screen
- 128 page "Keystone Movie Guide"
- Your first roll of 8mm Kodachrome Film

. . . COMPLETE package price only $129.50 Cash or $12.95 DOWN!

All equipment listed is BRAND NEW — factory packed, and . . .
Fully covered by D. F. A.'s famous 30 DAY FREE TRIAL and unique LIFETIME GUARANTEE!
FREE postage and insurance on all D. F. A. shipments!

Complete 1956 Keystone 16mm Package!

You'll receive all this—a complete 16mm outfit manufactured to the highest standards, for the discriminating user:

- **KEYSTONE MAYFAIR 16mm Magazine-loading Camera with coated f/2.5 lens**
- **KEYSTONE CONTINENTAL 16mm 750 watt Projector with Case**
- **Radiant glass-beaded "Hy-Flect" Screen**
- **128 page "Keystone Movie Guide"**
- **Your first magazine of 16mm Kodachrome Film**

Complete package price only **$285.00 Cash or $28.50 DOWN**

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Your trade-in may be used as down payment! It will be returned at D.F.A.'s expense if you don't accept our top offer.
☐ Send FREE literature on _____
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1956 Model 700 *Tape-o-Matic* Recorder:

The Voice of Music

NEW! And this is IT . . . for the recording perfectionist! VM Corporation—the world's largest manufacturer of phonographs and record changers—and D. F. A. now bring you a recorder with more professional features than any in its price range.

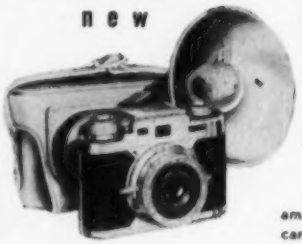
Here's but a short list of some of the Voice of Music's "ear openers":

- **Monitor Switch** . . . hear actual recordings while made "live" from radio or magnetic cartridge pickup
- **Woofer-tweeter speaker system**
- **High fidelity** . . . from 40 to 15,000 cycles
- **Dual input, dual output jacks**
- **Use as phono amplifier or P. A. system**

VM Tape-o-Matic only **$179.95 Cash or** **$17.99 Down!**

For the inside story on the feature-packed VM Tape-o-Matic Recorder write to DOWLING'S Fifth Avenue for FREE brochure **today!** Or—if you have a special recording or hi-fi problem—please feel free to write for personal advice to our audio consultant, Ralph Thomas.

Amazing new BOLSEY *Jubilee*



Revolutionary SET-O-MATIC thinks for you . . . actually calculates and sets. Truly an amazing invention, giving your camera a built-in brain!

- **PERFECT PICTURES automatically . . . or NEW FILM FREE**
  - **Crystal-bright, split image, coupled rangefinder**
  - **Automatic diaphragm setting**
  - **Automatic film transport release**
  - **Automatic shutter cocking**
  - **High-resolution Bolsey-Steinheil coated f/2.8 lens**
  - **PLUS many other exciting new features**

COMPLETE with flashgun and eveready top grain cowhide case, the great new 35mm SET-O-MATIC BOLSEY JUBILEE is only . . .

$79.50 Cash or

$7.95 Down

FREE Postage!

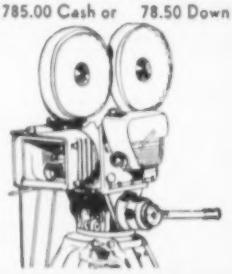
You'll find this so convenient and economical too. No need for you to estimate shipping costs. D. F. A. pays all regular shipping and insurance expenses . . . and guarantees safe arrival of your equipment. This includes A.P.O., F.P.O. and export orders! Upon request, air shipments gladly made; and you'll be billed just for the slight extra cost!

Top-Flight new 1956 AURICON SOUND MOVIE EQUIPMENT

"Auricon" has long been synonymous with the finest in 16mm sound motion picture equipment. In this proud tradition, D.F.A. is privileged to present these exciting, superb new models . . .

*Auricon Pro-600 (illustrated) Camera-Head	$1165.00 Cash or	$116.50 Down
Auricon Super-1200	4652.15 Cash or	465.21 Down
Auricon Filmagnetic	870.00 Cash or	87.00 Down
Auricon Cine-Voice, Single Lens Mount	695.00 Cash or	69.50 Down
Auricon Cine-Voice, Turret Lens Mount	785.00 Cash or	78.50 Down

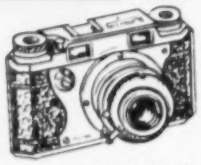
* Please write for Auricon Pro-600 price schedule for suggested accessory combinations at special prices.



Wherever you live, you may purchase your Auricon directly from DOWLING'S Fifth Avenue with only 10% Down and the balance on easy terms. Shipping and insurance is **free.** Order **today!**

1956 KONICA IIA

More quality features than any camera in this price range!



- You only use a single fingertip for focusing.
- You only use one eyepiece for focusing and viewing.
- You get more shutter speeds (9 speeds to 1/500 sec.) **plus full FMX synchronization.**
- You get needle-sharp, ultra-fast **Hexanon** 6-element coated f/2.0 lens.

Only **$119.75 Cash or** **$11.97 Down!**

Also a winner is the value-packed KONICA II, with the same features, but with Hexanon f/2.8 lens and F-M-X synch[1], at only **$89.75 Cash or $8.97 Down!**

KONICA II or IIA eveready case	$9.75
Autoup (20" to 40")	9.00
Sunshade	1.75

Stop press! NOW a superb 2¼ x 2¼ Twin-lens Reflex with interchangeable lenses!

TELE-KONIFLEX

Complete with normal 85mm f/3.5 Hexanon lens and 135mm f/4.5 Tele-Hexanon — both, of course, with matching viewing lenses . . .

Only $289.50 Cash or **$28.95 Down!**

Tele-Koniflex eveready case $10.50

TURN THE PAGE STILL MORE OF D. F. A.'s GUIDE TO THE BEST IN PHOTOGRAPHIC EQUIPMENT BY DOWLING'S FIFTH AVENUE. YOU'LL FIND A HANDY COUPON FOR ORDERING!

αὐτὸ καθ' αὐτὸ μεθ' αὐτοῦ μονοειδὲς ἀεὶ ὄν.

$$a = \frac{M\kappa}{4\pi^2}$$

An Ad Man's Dilemma . . .

My assignment seemed easy — and most pleasant. Write an ad on Leica.

I began: "We're shouting this from the rooftop!" But the boss, looking over my shoulder, stopped me before my typewriter finished the first paragraph. He said: "One doesn't shout about LEICA. It speaks softly, but with authority, and for itself."

Well, I'll admit I WAS stumped. The boss had a point. Embellishing a Leica camera with the usual adjectives or descriptive phrases — finest, best, sensational or most versatile — while all true enough, seemed quite unnecessary. For here, if ever, is a camera that is really IT.

But what IS IT, I asked myself, while my fingers momentarily rested idly on the typewriter keys . . . PLATO'S SYMPOSIUM had IT. So does Beethoven's Fifth Symphony; or Einstein's THE GENERAL THEORY. In fact, all these have a common denominator: Genius. And here, too, in the Leica M3 — among other Leitz products — is the embodiment of mechanical and optical genius, and certainly the genius of infinite care in manufacture.

As my thoughts again began to impress themselves into the printed page, I again caught the eye of — you know who. I thought to myself: "He must really think I've blown my stack." But — maybe it's the Irish Crusader in me — I went on: "Boss, read this! I know I'm not selling Plato. And I don't claim that 2300 years hence, the year 1956 will be known as the Leica age. BUT today the Leica M3 IS IT in our world of 35mm cameras. Let's face facts. It IS tops, although I'm afraid this IS also more 'shouting.' But relax, R. J. D., I'll pick up my pay check on the way out, and go shoot . . . Leica pictures!"

Timothy O'Toole

ex-Advertising Manager

P.S. The boss agrees! And to the tune of a $15. raise. This IS an amazing world. Not quite from the rooftop, but at least from D. F. A.'s own Skyline Suite, I have the boss shouting the praises of Leica with not entirely his usual restraint. But, more importantly, we want YOU to join this chorus. If you're considering the purchase of Leica equipment — and you should be — won't you write us today? We want you to enjoy shooting Leica pictures too!

Leica M3 without lens	$288.00 Cash or	$28.80 Down
Leica M3 with 50mm Elmar f/3.5 lens	348.00 Cash or	34.80 Down
Leica M3 with 50mm Summicron f/2.0 lens	447.00 Cash or	44.70 Down
Leica M3 with 50mm Summarit f/1.5 lens	468.00 Cash or	46.80 Down

Highlights from the Vast Range of Leica Accessories

Eveready Case for Leica M3	$ 15.00
Eveready Case for Leica II, III or IIIf (please specify camera model and lens	12.30
Combination Case for "f" Series Leica (EKOOZ)	48.00
Bayonet Adapter (please specify focal length)	10.50
Leica-Meter "M" complete	36.00
Leica-Meter 2 complete	24.00
Leica Stemar Stereo Unit complete	204.00
Underwater Housing (please specify model)	366.00
Ceyoo Flash Unit (please specify II, III, IIIf or M3)	24.00
Micro Ibso (MIBAC)	111.00
Valoy II Enlarger and Copying Stand	84.00
Focomat Ic Enlarger	138.00
Focomat IIa Enlarger with 50mm and 95mm Focotar f/4.5 lenses, orange filter, 8 x 10 easel	453.00

Braun Hobby Electronic Flash Units

"Standard" Unit with A.C. cord	55.50
"100" A.C. Unit complete	65.00
"100" Dry Battery Unit compete	89.95

Adox Film

Adox 36-exposure KB-14, KB-17, or KB-21 (pease specify)	1.46
Adox 50 foot in metal can KB-14, KB-17, or KB-21 (please specify)	5.85

Publications

Leica Manual and Data Book	5.00
My Experiences in Color Photography, Dr. Paul Wolff	10.00
Pocket Leica Book, Theodore Kisselbach	2.95
The Leica Way, Andrew Matheson	4.50
Leica Product Directory (72 pages) FREE on request to DOWLING'S Fifth Avenue	

Other Exciting New Leica Models

Leica II with 50mm Elmar f/3.5 lens	$132.00 Cash or $13.20 Down
Leica III without lens	120.00 Cash or 12.00 Down
Leica III with 50mm Elmar f/3.5 lens	177.00 Cash or 17.77 Down
Leica III with 50mm Summicron f/2.0 lens	275.00 Cash or 27.50 Down
Leica IIIf without lens	180.00 Cash or 18.00 Down
Leica IIIf with 50mm Elmar f/3.5 lens	237.00 Cash or 23.70 Down
Leica IIIf with 50mm Summicron f/2.0 lens	335.00 Cash or 33.60 Down
Leica IIIf with 50mm Summarit f/1.5 lens	357.00 Cash or 35.70 Down

The Family of Superb Leica Lenses

35mm Summaron f/3.5; screw-mounting	$ 66.00 Cash or $ 6.60 Down
35mm Summaron f/3.5; bayonet-mounting	99.00 Cash or 9.90 Down
85mm Summarex f/1.5; screw-mounting	360.00 Cash or 36.00 Down
90mm Elmar f/4.0, rigid; screw-mounting	90.00 Cash or 9.00 Down
90mm Elmar f/4.0 rigid; bayonet-mounting	93.00 Cash or 9.30 Down
90mm Elmar f/4.0, collapsible; bayonet-mounting	150.00 Cash or 15.00 Down
125mm Hektor f/2.5; screw-mounting; w/Visoflex	249.00 Cash or 24.90 Down
125mm Hektor f/2.5; bayonet-mounting; w/Visoflex	252.00 Cash or 25.20 Down
135mm Hektor f/4.5; screw-mounting	135.00 Cash or 13.50 Down
135mm Hektor f/4.5; bayonet-mounting	141.00 Cash or 14.10 Down
200mm Telyt f/4.5; screw-mounting; w/Visoflex	258.00 Cash or 25.80 Down
200mm Telyt f/4.5; bayonet-mounting; w/Visoflex	261.00 Cash or 26.10 Down
400mm Telyt f/5.0; screw-mounting; w/Visoflex	952.00 Cash or 95.20 Down
400mm Telyt f/5.0; bayonet-mounting; w/Visoflex	955.00 Cash or 95.50 Down

Bayonet-mounting lenses fit the Leica M3; screw-mounting lenses fit Leica "Standard" and later models including Leica II, III and IIIf.

Any currently available Leica product may be ordered by mail directly from DOWLING'S Fifth Avenue! Shipment will be made with postage and insurance free anywhere in the world. All equipment will be brand new, factory-fresh. Wherever applicable, an E. Leitz, Inc. registration card and import certificate, as well as D. F. A.'s own guarantee, will accompany your new Leica equipment.

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☐ I am shipping equipment for exact allowance.
Your trade-in may be used as down payment! It will be returned at D.F.A.'s expense if you don't accept our top offer.

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☐ Send FREE 1956 Catalog. ☐ Send pamphlet on "Deferred Payments."

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Only the *KALART* BC-400 flash unit can be used on ALL cameras

KALART BC-400 is a flash unit designed to fit the flash needs of synchronized cameras. It has unique features such as Safety Shield, Circuit Breaker Test Light that tests the circuit as well as the flashbulb, Kal-Q-Lator to determine correct lens opening, Extension Outlet, and many other features. When ordering give make and model of camera.

Only **$14.95** for most cameras

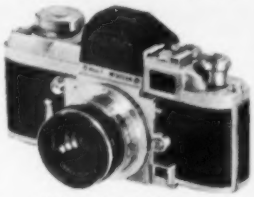
KALART COILFLASH accessory attaches to the BC-400 and permits you to hold the flash "off the camera" for better lighting —also can be held at arm's length from the camera for bounce flash off ceilings. Coiled cord is contained in handle—can be used on or off the camera.

Only **$9.00**

For More Features buy a KALART BC-400 Flash Unit

ALPA the ALL-IN-ONE 35mm Camera

precision-built in Switzerland



- **Optional Focusing:** Single-lens reflex groundglass or individual, single-window, coupled rangefinder AND multifocal, "sportstype" viewfinder.
- **Unsurpassed Optics:** Everyone of the coated, high-resolving power ALPA lenses (wide angle through 3750mm!) is individually tested, carries an unconditional guarantee. Choice of click stops or FULLY automatic diaphragm with 50mm lenses.
- **Are you a perfectionist? Here's your answer:** The superlative Kern Switar 50mm coated f/1.8 APOCHROMAT, the **only** lens for 35mm cameras correcting all 3 primary colors, including red. Gives critical definition even at full aperture, f/1.8 (200 lines per mm.).
- **Unique Eveready Case:** Holds ALPA with wide angle, 50, 75 or 90mm lens; **plus** sunshade, filters and exposure meter.

Your Choice of Lens Determines Price of Camera

	ALPA 5 (Prism Reflex)	10% Down	ALPA 7 (Prism Reflex & Range-finder)	10% Down
Schneider Xenon 50mm coated f/1.9 with FULLY automatic diaphragm	$389.00	$38.90	$429.00	$42.90
Kern Switar 50mm coated f/1.8 APOCHROMAT with FULLY automatic diaphragm	419.00	41.90	459.00	45.90
Macro-Kilar E 40mm coated f/3.5	314.00	31.40	354.00	35.40
Macro-Kilar D 40mm coated f/3.5	339.00	33.90	379.00	37.90

Selected ALPA Wide Angle and Telephoto Lenses

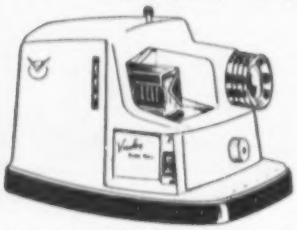
Angenieux Retrofocus 28mm coated f/3.5 lens	$ 139.00
Old Delft Alfinar 38mm coated f/3.5 lens	89.00
Schneider Xenar 80mm coated f/2.0 lens	169.00
Schneider Tele-Xenar 90mm coated f/3.5 lens	119.00
Old Delft Algular 135mm coated f/3.2 lens	129.00
Zoomar Reflektar 3750mm coated f/25.0 lens	3500.00

NEED DOLLARS?

If you live in a country whose currency is non-convertible with U. S. dollars, you may be uncertain about how you can purchase from Dowling's Fifth Avenue. We may have the answer! Without obligations, please write for free details on payment with convenient Unesco Gift Coupons!

Project-O-Matic

BY VIEWLEX
Fabulous Automatic
35mm PROJECTOR



D.F.A. proudly presents the new VIEWLEX 300 watt PROJECT-O-MATIC . . . it's in a class by itself for beauty, for efficiency, for value . . . featuring VIEWLEX's renowned brilliance and coolness.

Self-contained built-in automatic slide changer. 2 x 2 slides, in any type mount, are automatically projected forward or reverse, and returned to same slot. Holds 60 slides. Quiet, efficient fan-cooling. Visual slide selector window and dozens of other luxury features.

Only $69.95 Cash or **$6.95** Down!

Complete with Slip-on Case and 6 Trays

Aladdin . . . Trade in Your Lamp!

. . for the all-new **HICO-LITE**

Your magic will certainly be 1956-variety with HICO-LITE Electronic Flash at your command. New worlds of picture-making possibilities will literally open before your eyes. The story is too big and too important for details here. Suffice to state: In advanced design, compactness and light-output — HICO-LITE is in a class by itself. Write directly to DOWLING'S Fifth Avenue **today** for **all** the facts. You'll learn about a rigid guarantee unlike anything else in the electronic flash industry. You'll read about HICO-LITE **convertibility** — an amazing account of how your 109 Pro Deluxe may be modified to a 228 Deluxe or even to a Deluxe Portable Portrait Unit, at any time, without scrapping or trading your existing equipment!

Or, here are the essentials for immediate ordering:

HICO-LITE 109 Pro Deluxe (complete with battery and shutter cord)	**$124.50 Cash or $12.45 Down**
HICO-LITE 228 Deluxe (complete with battery and shutter cord)	**194.50 Cash or 19.45 Down**
HICO-LITE AC Conversion Pac	**27.50 Cash or 2.75 Down**
HICO-LITE Deluxe Portable Portrait Unit	**349.50 Cash or 34.95 Down**

Free postage and insurance — of course! **Really** easy — interest-free — terms: Naturally . . . when your order is mailed directly to DOWLING'S Fifth Avenue!

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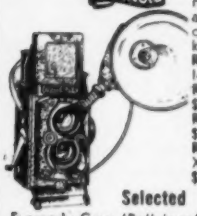
1956 Rolleiflex Rolleicord



The world-over "DOWLING'S Fifth Avenue" stands as synonymous with **fine photographic** equipment and **only** fine photographic equipment. In this traditon, we are proud to be known as Rollei Headquarters! Order your Rollei requirements directly from D. F. A. by mail. You'll know it's "right!"

Rolleicord V with coated Schneider Xenar f/3.5 lens **$134.55 Cash or $13.45 Down.**

Rolleiflex with coated Schneider Xenar f/3.5 lens **$217.50 Cash or $21.75 Down.**

Rolleiflex with coated Zeiss Tessar f/3.5 lens **$232.50 Cash or $23.25 Down.**

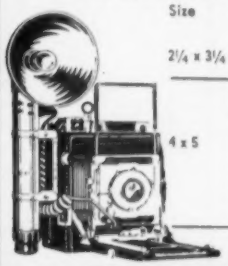
Rolleiflex 2.8D with choice of either Schneider Xenotar or Zeiss Planar f/2.8 lens **$291.50 Cash or $29.15 Down.**

Selected Accessories for Use with Your Rollei

Eveready Case (Rolleicord V)	$14.95	Rolleikin II 35mm Adapter	34.95
Eveready Case (Rolleiflex f/3.5)	17.00	Rolleikin 2.8D	25.80
Eveready Case (Rolleiflex 2.8D)	18.00	Rollei Filters (f/3.5)	4.95
Rolleiflash (illustrated)	29.95	Rollei Filters (2.8D)	7.95
Flashflex	15.95	Rolleimarin	299.50
Lens Hood (illustrated)	4.95	Rolleimeter	24.00
Rolleinar—par I or II (f/3.5)	27.00	Panorama Head	13.95
Rolleinar—par I or II (2.8D)	27.00	Stereo Attachment	13.95

1956 Pacemaker GRAPHIC OUTFITS

All brand new, latest models, with factory guarantee! Includes: • Graflok back • Ektalite screen • **new** Graphic coupled rangefinder with Rangelite and automatic parallax viewfinder • **new** full image wire finder • Graflite 3 cell flash gun • deluxe case • film pack adapter • roll film holder • 6 cut film holders • adapter ring • sunshade • 4 filters. Prices below include **all** this extra equipment! Easy payments available!



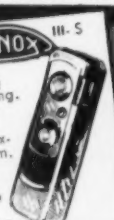
Size	Coated Lens In Shutter	Speed Graphic	Crown Graphic
2¼ x 3¼	101mm Ektar f/4.5 (1/800 sec.)	$338.	$299.
	105mm Tessar f/3.5	299.	279.
	105mm Ektar f/3.7	343.	294.
4 x 5	135mm Schneider Xenar f/4.7	299.	279.
	135mm Optar f/4.7	368.	319.
	127mm Ektar f/4.7	368.	319.
	135mm Tessar f/4.5	348.	299.
	150mm Tessar f/4.5	348.	299.
	150mm Schneider Xenar f/4.5	348.	299.
	152mm Ektar f/4.5	386.	337.
	135mm Schneider Xenar f/3.8	348.	299.
	150mm Tessar f/3.5	399.	379.
	150mm Schneider Xenotar f/2.8	499.	459.

New Graphic rangefinder is manufactured for 4 X 5 cameras only. 2¼ X 3¼ outfits are supplied with Kalart coupled rangefinder.

New 1956 Revere "888"

Runs by itself! Model "553" (300 watt, automatic) **$79.50 Cash or $7.95 Down;** Model "555" (500 watt, automatic) **$89.50 Cash or $8.95 Down;** Model "888" (500 watt, fully automatic) **$144.50 Cash or $14.45 Down.** Pr. incl. 7 trays and case.

1956 MINOX III-S



Fabulous! Weighs 2½ ozs.; 3" long. Automatic transport takes 50-exposure film. Built-in flash; 9 speeds to 1/1000th sec.; sharp f/3.5 lens. With case and chain **$139.50 Cash or $13.95 Down.** Accessory reflex finder **$27.50;** right-angle finder **$14.95.**

new 1956 Nikon S-2

Life-size rangefinder/viewfinder; rapid film transport; full synch'; speeds to 1/1000th sec. With Nikkor coated f/2.0 lens **$299.50 Cash or $29.95 Down;** or with Nikkor coated f/1.4 lens **$345. Cash or $34.50 Down.** A real gem!

New 1956 Automatic Exakta VX

With fully automatic diaphragm lens listed: Tessar f/2.8 **$259.50 Cash or $25.95 Down;** Westagon f/2.0 **$289.50 Cash or $28.95 Down;** Biotar f/2.0 **$345. Cash or $34.50 Down;** Xenon f/1.9 **$351.70 Cash or $35.17 Down.** With Pentaprism R/F add **$47. Cash or $4.70 Down.**

ALL NEW 1956 RETINA IIIc

Built-in exposure meter and with normal Xenon coated f/2.0 lens in M-X shutter —**$190. Cash or $19.00 Down.** Optional: Curtar coated f/5.6 wide 35mm angle lens **$62.50 Cash or $6.25 Down;** Longar 80mm coated f/4.0 telephoto lens **$82.50 Cash or $8.25 Down.** Retina IIIc **$139.50 Cash or $13.95 Down.**

New 1956 PORTABLE Radio-Phonograph Combinations

RCA "Skipper" battery-operated **$65.80,** battery and AC **$79.75.** Webcor (AC, 3 speed automatic changer) **$99.50.** Superb Metz battery AC (AM and choice FM or short wave) **$129.50. Available for 10% down.**

1956 Kodak Brownie Movie Outfits

Complete outfits with Brownie camera and Projector, including single Lens (1/2.7) camera **$99.50 Cash or $9.95 Down;** or (f/1.9) camera **$108.75 Cash or $10.87 Down;** or Turret (f/1.9) camera with wide angle and telephoto **$141.50 Cash or $14.15 Down.**

1956 POLAROID Land Cameras

Highlander Camera only **$69.95 Cash or $6.95 Down.** Complete Highlander outfit: camera, flash, meter, case for outfit, and 3 rolls of film only **$97.50 Cash or $9.75 Dn.!** Speedliner **$89.75 Cash or $8.97 Down!** New 700 **$125. Cash or $12.50 Dn.**

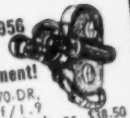
1956 2¼ X 2¼ Single Lens Reflex Cameras!

Hasselblad 1000F with Ektar coated f/2.8 lens **$379 Cash or $37.90 Down;** Hasselblad Superwide with Biogon Coated f/4.5 lens **$489.50 Cash or $48.95 Down.** Exakta 66 with Tessar Coated f/2.8 lens **$319.50 Cash or $31.95 Down.**

1956 argus Outfits

8-unit Argus C-3 Outfit with camera, case, flash, famous-make photo electric meter, case, chain, plus gadget bag to hold all . . . only **$74.50 Cash or $7.45 Down** complete! Argus C-4 Outfit with camera, case, flash **$99.50 Cash or $9.95 Down.**

Top 1956 16mm Equipment!



B&H 70-DR, TTH f/1.9 **$385.50 Cash or $38.50 Down;** B&H Filmosound 302 **$719. Cash or $71.90 Down;** Cine-Kodak K-100, Ektar f/1.9 **$269. Cash or $26.90 Down;** CineKodak Special II, Ektar f/1.4 **$1280. Cash or $128. Down.**

Outstanding new 1956 ENLARGERS

Beseler 45M **$198.75 Cash or $19.87 Down;** Beseler 45MCR **$239.75 Cash or $23.97 Down;** Omega A-2 **$96.50 Cash or $9.65 Down;** Automega B-7 **$139.50 Cash or $13.95 Down;** Omega D-2 **$192.50 Cash or $19.25 Down;** Omega D-3 **$214.75 Cash or $21.47 Down.**

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☐ Give me tentative allowance by mail.
☐ I am shipping equipment for exact allowance.
Your trade-in may be used as down payment! It will be returned at D.F.A.'s expense if you don't accept our top offer.
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DYCO COLOR PRINT KIT—

WILL MAKE YOUR DARKROOM A COLOR LAB.

- Uses standard black and white darkroom equipment.
- No color experience necessary.
- Make prints in safelight. See and control your results.

Make fifteen 8 x 10" quality color prints from your color transparencies on black and white enlarging paper. Kit includes complete color chemicals and instructions. This **special introductory offer** includes package of 8 x 10" color print paper.

IT'S EASIER THAN ANY OTHER COLOR PROCESS YOU CAN USE!

ORDER your kit NOW! We will ship C.O.D. or, if you send payment with order, shipment will be postpaid.

Complete Kit only $19.95

Literature on request.

Dyco Color Corp.

310 W. Liberty St., Louisville 2, Ky.

Eva-Lite electronic flash unit works on a-c-power source—complete unit priced at $19.95.

able distance from the electrical outlet. A "PC" synch tip is attached to the end of the camera cord for use on all Compur-type shutters, but adapters are available for other types of camera synch outlets. Like other electronic-flash units, the light emitted is of daylight quality (about 6500 K) permitting the use of daylight-type color films without filtration for pleasing results. As for light output, a daylight Kodachrome guide number of 35 is claimed. Testing the performance of the Eva-Lite with a Polaroid Highlander camera against that of a competitive D-battery unit, costing almost three times as much (with a claimed Kodachrome guide number of 50) we found the Eva-Lite to be a little more than two stops slower. The light distribution of both units against a white wall was very acceptable on the Polaroid Type 32 (200 speed) material used with the (2¼x3¼) Highlander camera.

Obviously, the Eva-Lite is not the final answer to the eventual retirement of expendable flashbulbs, but it is an important step. A-c is not available as a power supply in the outdoors and in many picture-taking situations that the amateur considers important to his random as well as planned shooting activity. And the necessarily limited light output is not sufficient for relatively large areas or for pictures at a great distance from the camera. But films, both black-and-white and color, are getting faster by the year and light output becomes less and less a problem with each new break-through of the film-speed barrier. The millennium can't possibly arrive, however, until completely portable battery-powered units somewhat more compact than the new unit have arrived and at a cost little higher than that of the Eva-Lite.

Negative-Positive Xerography. Until recently, all references to the dry electrophotographic process known as "xerography" have had to do with positive-to-positive or negative-to-negative image reproduction. Details of a relatively new negative-to-positive method of xerographic reproduction are lucidly presented in a paper entitled *Reversal Development of Continuous-Tone Xerographic Images*, by R. E. Rayford and W. E. Bixby, published in Vol. 6 No. 3 (1955) of *Photographic Engineering*. The disclosure of the new process had originally been made at the 1955 Conference of the Society of Photographic Engineers at West Point, in May 1955.

In ordinary xerography, a metal plate with a photoconductive layer is sensitized in darkness by distributing a uniform electrical charge over its surface. When the plate is exposed to light in a camera or printing machine, various areas of the charged plate become discharged in direct proportion to the intensity of light striking them. The electrostatic image on the plate is made visible by releasing a cloud of charged black-powder particles in a channel formed by the exposed xerographic plate and metal plate, called a development electrode, which are connected electrically to bring them to the same potential. The charged powder particles entering the development channel are deflected toward or away from the xerographic plate on the basis of their polarity (positive or negative) relative to that of the electrostatic image. Consequently, the unexposed, heavily charged areas of the plate receive a dense deposit of black powder; the partially discharged middle-tone areas receive less, and the completely discharged highlight areas, none at all.

To produce a positive image from a negative or a negative from a positive, a change is made in the developing procedure: The potential of the development electrode is raised to a voltage equal to the highest potential remaining on the xerographic plate after the latter has been exposed. This causes the charged black-powder particles of opposite polarity to be attracted to and heavily deposited on the areas of the xerographic plate which have had the greatest exposure: the deposits are in inverse proportion to the degree of exposure. After describing the image-formation mechanism, the paper goes on to describe the effects of (1) raising the development electrode potential to a voltage higher than the highest remaining potential on the plate and (2) maintaining the potential of the development electrode at a lower voltage than the highest remaining potential on the plate. The paper concludes with a speculative discussion of an automatic photofinishing machine capable of producing positive xerographic prints from silver-halide negatives with all of the attendant advantages of dry, extremely rapid, electrostatic image formation and processing.

Kilfitt Lens-Test Plate. Many fastidious amateurs and most professional photographers are concerned about the inherent sharpness and resolution characteristics of their camera lenses. Although pictures with fuzzy detail are often attributable to other factors like camera or subject movement, careless focusing, or improper seating of the lens in the camera-lens flange, an objective determination of a lens' inherent capabilities establishes the best performance of the equipment under ideal conditions. This is one of the reasons why the lens advertisements of The Camera Centre of London are so avidly read in the British photographic press; for each interchangeable lens listed in

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CANON Model V CAMERA

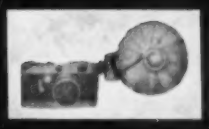
TWIN-TURRET ZOOMFINDER

CANON LENSES

PHOTOMICROGRAPHY UNIT

The New Canon System of Photography

FLASH UNIT Model V



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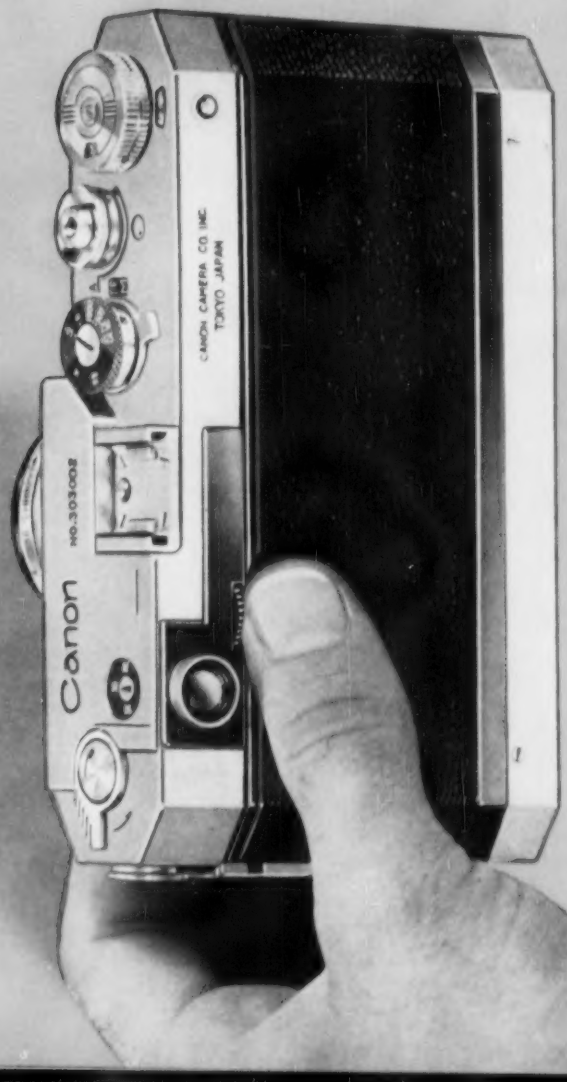
THE NEW CANON SYSTEM OF PHOTOGRAPHY!

Final realization of every dream and faint hope camera users have cherished since the infant days of photography! Crowning photographic achievement of this age of Univac and small miracles!

It is fitting that Japan's largest camera manufacturer, and new world-leader would produce the finest 35mm camera in the history of photography. Only Canon engineering throughout nearly a quarter of a century of research and development . . . and a burning drive for perfection, could have achieved this. The photographic world has eagerly awaited a camera such as the Canon V, and looked to Canon for its evolution. For who else but the pioneer in the development of the world's highest speed lenses could design it.

With pardonable pride, we present to the world of 35mm photography, its definitive achievement . . . The New Canon System of Photography, and its nucleus, the Canon V!



Canon

CANON MODEL V

THE NEW CANON V! Stated simply, the Canon V masters the everyday problems of 35mm photography and leaves them far behind. Disdainful of popular "gadgets", it was conceived as an intelligently designed tool for the serious photographer, who is tackling increasingly complicated picture assignments. *At the same time, it had to be a camera basic enough to be grasped by the novice.*

How to achieve these objectives? First, the new Canon had to embody greater speed of action, yet relieve the photographer of the rudimentary mechanical operational tasks. It had to be more versatile than ever, its accessories permitting broader horizons for the varied needs of industry, science, journalism, art . . . *and of no lesser importance, the amateur.* Its optics had to be capable of seeking out subjects in what has long been considered impossible situations. It makes "Available Light", once considered an experimental field for the photographer, *the norm.* Canon's ultra speed lenses, such as the new 50mm f:1.2 and the new 35mm f:1.8 easily conquer this barrier.

But speed and handling ease are not enough. Canon had to embody durability and the precision that has made Canon the standard by which all other camera mechanisms are measured. In this respect too, the new Canon V is the new leader! Obviously, the owner of a Canon V need not be an expert, but owning it sets him apart as a connoisseur. If he is an expert who has mastered the routine assignments, handling the Canon V will prove a thrilling experience. *In use, its many premium features will make him wonder how he ever managed without them!*

A few details about the new Canon! First, its lenses all feature the standard Canon thread-mount. No sacrifice for "gadget" value, here; Canon retains the only mount design that offers complete accuracy—durable and unfailing. Only a series of hardened threads offer the great surface "contact" that means your lens alignment will never wear out of line. *And, of course, your present investment in Canon or Canon-type lenses is preserved.* If it's speedy-operation you fancy, Canon's single-stroke trigger leaves your shutter finger always ready to shoot, your left hand winds film and shutter. Both hands are put to work, meaning twice-as-fast camera action. Canon's accessory pistol grip with detachable wrist strap provides even greater handling efficiency. Of course, you may prefer to use the conventional winding knob. *With Canon you can!* Parallax is gone, for Canon automatically adjusts your accessory viewfinder as you focus. Canon introduces another *new concept* in camera

design, by providing built-in adjustable viewfinder framing. Set it at "50" for any of Canon's four 50mm lenses, or at "35" for either of Canon's two 35mm lenses, and you see the *exact* field size your lens sees. Or, flip to "RF" for magnified focusing image! *Step into the picture* . . . Canon's built-in self-timer delays the shutter for some ten seconds. Ease of loading? Swing Canon's fully hinged back completely open, and also see its unique roller design that keeps film perfectly flat and taut. When you use flash, different bulbs have different peak lags, and as you vary your shutter speed, you have to compensate for that, too. Canon automatically adjusts for the bulb or electronic flash you select...and *also* for the speed at which you fire. *These are but features, of which Canon has many.* To truly appreciate the new Canon V, it must be handled, tried. Your Canon Franchised Dealer will gladly demonstrate the complete new Canon System of Photography. *See Canon first hand!*

Canon Model V: with 50mm f:1.8 Lens $325.00;
with 50mm f:1.2 Lens $450.00; with 35mm f:1.8 Lens $350.00

25mm f:3.5 Fastest 25mm lens in the world, incorporating new rare glass elements that result in a degree of edge-to-edge definition heretofore considered impossible! Used wide open, this spectacular new lens is virtually free of barrel distortion and aberrations. Spectra-coated ™ for optimum color fidelity.
$175.00 • Viewfinder $15.00

28mm f:2.8 Embodies new rare glass elements that make this the finest, fastest 28mm lens available. No barrel distortion or curvature at all stops; covers full 75 degree field. An ideal lens for available-light photography where a great angle of view is required. Spectra-coated ™ on all glass-to-air surfaces.
$145.00

35mm f:1.8 This is definitely the fastest wide angle lens ever produced for commercial use, opening new horizons in the field of available-light photography. Ideal for use as a "standard" lens, where a wider angle of view is desired, yet no sacrifice of quality or speed is permitted. Its crisp, distortion and aberration-free results are breathtaking. This is another Canon milestone in lens design.
$150.00
(No viewfinder required with Canon V Camera)

50mm f:1.2 No other lens has ever offered speed greater than f:1.5, with such a high degree of correction resulting in aberration-free definition and resolution. Surpasses even the already accepted leader in the field, Canon's 50mm f:1.8, in performance quality. Incorporates new rare-glass elements, Spectra-coated ™, in new lightweight mount. A superb addition to the already world-famous Canon lens family.
$250.00

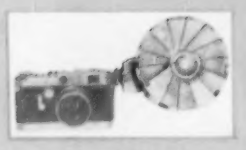
50mm f:1.8 – Completely new design, making this popular Canon lens even finer than its predecessor. Residual spherical aberration is virtually eliminated, as are coma and curvature. Its pin-point definition is without equal, in lenses of its type. Its contrast and brilliance are remarkable! Spectra-coated ™ for maximum light transmission, in new lightweight mount.
$125.00

400mm f:4.5 High speed telephoto incorporating new Canon reflex housing. Unique design permits filter mounting behind the lens, so that the filter's color and density do not block light transmission during focusing and viewing. Extremely sharp, no curvature or aberrations. Angle of view is 6 degrees; magnification 8X; its five elements are Spectra-coated ™. Includes 5 filters and lens shade.
Complete unit $590.00

Canon

Canon

THE COMPLETE SYSTEM OF PHOTOGRAPHY



TWIN-TURRET ZOOMFINDER Two turrets (one for long, one for short focal lengths) provide actual field of view, and correct magnification for lenses from 35mm to 135mm. With accessory front attachment, range extends down to 21mm. Parallax automatically adjusted by camera focusing. Complete with leather case.

COPYING UNIT Available in portable or table models, for use with Canon 50mm lenses. Features 28" high stanchion, carrying arm with detachable, adjustable panto-type platform, permits reproduction ratios from 1:1 to 1:17 portable with extension tubes and film magazines.

FLASH UNIT, Model V B.C. type portable flash unit, with 5" folding, adjustable reflector. No external wiring is required, unit fits directly on bayonet-type contact on camera. Sturdy plastic housing, outlets for extension flash or off-camera shooting, test lamp.

AUTO-UP Supplementary close-up lens, available in two types, Model 1 for focusing 15" to 22"; Model 2 for 22" to 40". Mounts on Canon 50mm lenses, permits rangefinder focusing directly thru its viewing lens. For 50mm f:1.5, $24.00; for 50mm f:1.8, $18.95; for 50mm f:2.8, $17.95. Price includes leather case, and choice of models.

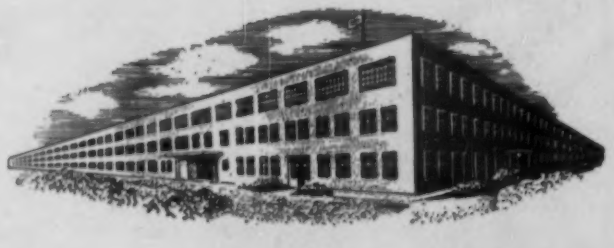
PHOTOMICROGRAPHY UNIT For recording image directly thru microscope. Couples to tube of any standard microscope. Ten power focusing eyepiece allows full viewing of subject while shooting. Built-in data projector records subject data on negative.

CAMERA HOLDER Cradles the camera for tripod mounting in vertical or horizontal position. Bubble level assures accurate positioning at all times. Includes leather case.

OTHER CANON LENSES

This seal identifies your Canon Franchised Dealer, who will gladly demonstrate The Canon System of Photography.

Camera Clubs: we'll gladly lend you our 16mm color/sound film, "New Japan Makes a Camera."



KAMENY ASSOCIATES ADVERTISING

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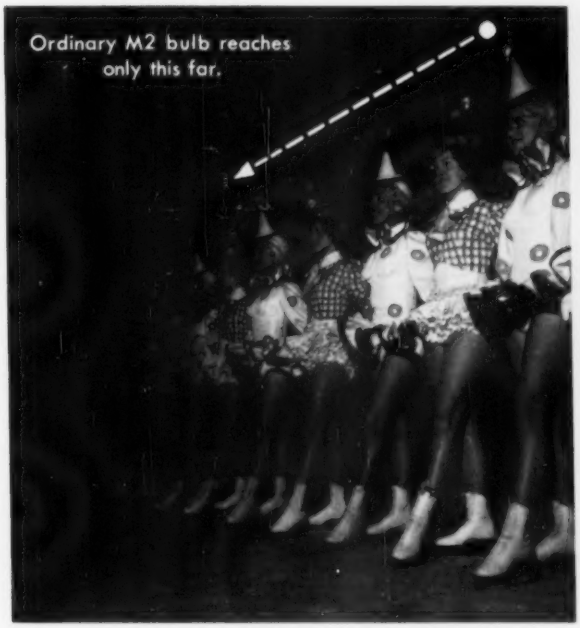
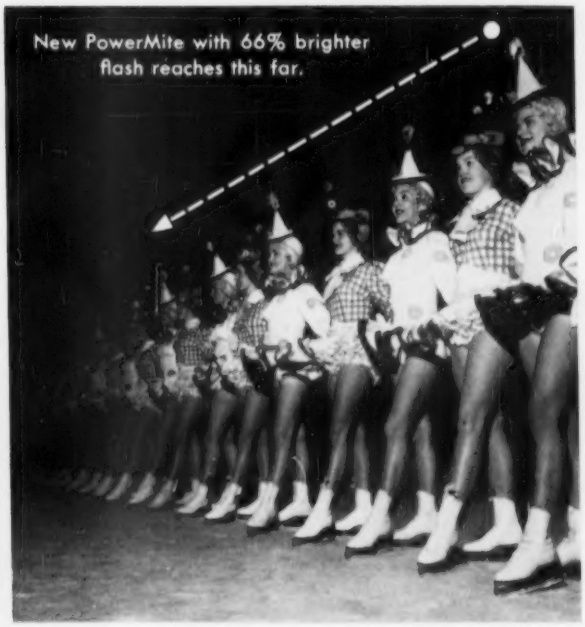
New G-E PowerMite M2 flash bulb is now 66% brighter

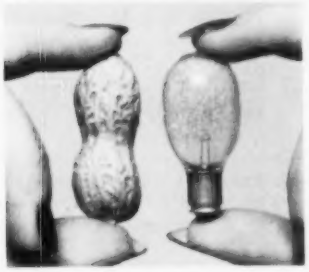




Powerful enough for shots up to 24 feet
Same tiny size, still saves 3¢ every shot

NOW, General Electric makes low-cost flash photography a fact. The above comparison photos of Ice Follies precision skaters demonstrates how new PowerMite M2 with 66% brighter flash now has big-bulb power as well as tiny-bulb convenience and lowest cost.

The photo at left (above) was taken with an ordinary M2 bulb, and the skaters are well-lighted only part way. The photo at right (above) was taken with a new PowerMite, and the skaters are well-lighted almost all the way. Both shots were taken 10 feet from the nearest skater with a 4 x 5″ Speed Graphic and Royal Pan film, 1/30 sec. at f/16.



Peanut-size PowerMite is the first bulb its size with enough power for shots from 4 to 24 feet—and beyond, with new high speed films. Only ¼ as big as regular midget bulbs, PowerMite is so tiny two 12-bulb packs fit pocket or purse. So low-cost, only 9¢* each, you save 3¢ every shot. And so handy to use. Ring-type base plugs in, pops out without twisting. Many cameras are equipped for PowerMite. With others, use handy adapter, only about 22¢ at your dealer's. Try a pack of new General Electric PowerMites and shoot *all* your flash shots *better* for *less!*

EXCLUSIVE NEW POWERMITE BLUE

Another exclusive from General Electric! G-E research now gives you the first tiny, low-cost bulb designed for general use with daylight color film: New PowerMite *Blue!*

NEW POWERMITE NOW AVAILABLE IN THESE CITIES

New PowerMites will be on sale first in Cleveland, New York, Chicago, Los Angeles, Atlanta and St. Louis. Until your dealer has new PowerMite, ask for the present General Electric M2 bulb. You get the same tiny size, low cost and excellent results for all shots up to 15 feet away.

*Manufacturer's suggested retail price

GENERAL ELECTRIC

KONICA IIa
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Rivals the world's most expensive 35's, in *quality, performance* and *handling ease*. Features MFX synchronized shutter to 1/500th sec., famous 48mm f:2 HEXANON lens.

KONICA II
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As above, but with popular 50mm f:2.8 HEXANON lens.

The TELE-KONIFLEX
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World's only twin-lens reflex with interchangeable lenses. Finest quality design and construction, with all the top-notch features *you expect of a KONICA product*. Choice of 85mm or 135mm, by merely switching lenses. Includes 2 sets of lenses, sunshade, filters.

HEXANON f:1.2
60mm
LENS OUTFIT
$359.50

An important contribution to "available light" photography. Eight element formula successfully eliminates aberrations, permitting change of aperture settings with virtually no shift of focus . . . toughest test of all! Includes lens cap, View-finder, Sunshade and 3 Konifilters. For Leica, Canon, etc. (Adaptable to Leica M-3.)

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these ads is preceded by a scientifically measured resolution figure in lines-per-millimeter. Additionally, the asking price usually varies with the resolution figure. This also explains why a new merchandising device for Kilfitt Kilar lenses is creating so much interest in American trade circles.

Each Kilfitt Kilar lens now offered here is being furnished to the ultimate user with a glass plate of a test chart that records the photographic performance of the particular lens as measured and evaluated in the Kilfitt factory. With each test plate comes an 8-power magnifying lens for examining the photographic detail on the plate and an information leaflet that explains the test procedure and interprets the test data observed by the user. The test plate supplied to the purchaser of the lens is a twin of a test plate made in the Kilfitt factory, on the basis of which the particular lens is accepted as salable or rejected. The second plate is retained among the permanent records of the manufacturing organization. Incidentally, Kilfitt lenses are distributed nationally here through the facilities of Kling Photo Corporation, New York City.

Film Vendor. Like candy, chewing gum, facial tissue, ice cream, coffee and what-have-you, photographic supplies will become available this year in coin-operated canteens. Early last January, a representative of the Technamatic Corporation, a Division of Chicago Kitchenware, Inc., called on us to describe film- and flash-bulb-dispensing equipment that his firm is now supplying on a prompt delivery basis to interested distributing concerns. The Film Vendor, illustrated below, is the first to be completed. It holds a total of 115 film packages—26 rolls of the 120 size, 56 of 620, and 33 of 127—and is operated by the insertion of two quarters into the coin slot (change being returned with the film package where applicable).

Coin-operated film dispensing machine handling popular sizes of popular black-and-white materials will soon be availabe everywhere.

The equipment is claimed to be rugged and trouble-free, requiring no more maintenance service than an occasional wiping of the slug-rejection mechanism. The representative claimed that the interior was sufficiently insulated and ventilated to permit the machine to be placed in the

(*Continued on page* 199)

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RANGEFINDER MODEL C

a precision camera for only $49.95

Here are some of the exciting features of the Edixa Rangefinder Model C:

GREAT F/2.8 ISCONAR LENS
The Isconar F/2.8 color-corrected lens renders an extremely high degree of brilliance and sharpness in color and black and white. You'll get fine crisp pictures everytime.

COUPLED RANGEFINDER
Edixa's new, large, brilliant rangefinder is automatically coupled and scientifically balanced to assure pin-point sighting and smooth focusing. Every picture will be needle-sharp and clear.

AUTOMATIC RAPID-WINDING LEVER
Sports and action can be captured quickly in sequence because of the Edixa's automatic rapid-winding lever. A flick of the finger on the lever permits a series of successive shots to be taken in seconds. Double exposures are impossible.

WIDE RANGE OF SHUTTER SPEED SETTINGS
The precision Pronto shutter adds to the impressive capabilities of the Edixa with its speeds of 1/25, 1/50, 1/100, 1/200, and Bulb.

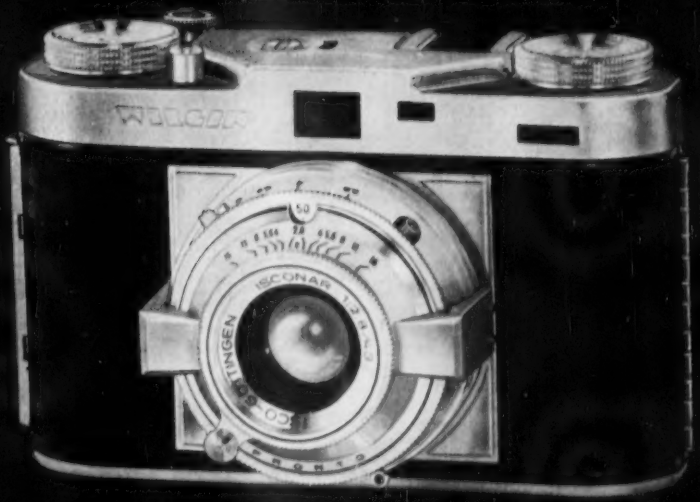
BUILT-IN SELF TIMER — BODY RELEASE
A built-in self timer is provided for self portraits. You have 12 seconds in which to step into the picture. A smooth, gentle, vibrationless body-release assures perfect pictures.

FLASH SYNCHRONIZATION
Flash pictures in color and black and white can be taken very easily as the Edixa is internally synchronized for flash.

BEAUTIFULLY STYLED
Expert German craftsmanship, outstanding design, and optical and technical perfection are embodied in the new and impressive Edixa. Handsomely finished in satin chrome and black morocco leather.

Other important features of the Edixa Rangefinder Model C include: new wide-sweeping optical viewfinder; unparalleled precision micrometer-geared film frame counter, tripod sockets and chromed accessory shoe.

There is a wonderful feeling of pride and self-esteem which comes with owning an Edixa Rangefinder C camera, for the Edixa is an example of traditional German craftsmanship at its best! Prominent personalities in many fields, all people of discriminating taste, have discovered the fine qualities and wonderful values inherent in the EDIXA—a product of Germany, renowned optical center of the world.



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Edixa Coupled Rangefinder Model C with Rapid-Winding Lever, F/2.8 Color Corrected Lens, Pronto Shutter with speeds to 1/200 second, Self-Timer and Built-in Flash is priced at only . . . . . **$49.95** LIST

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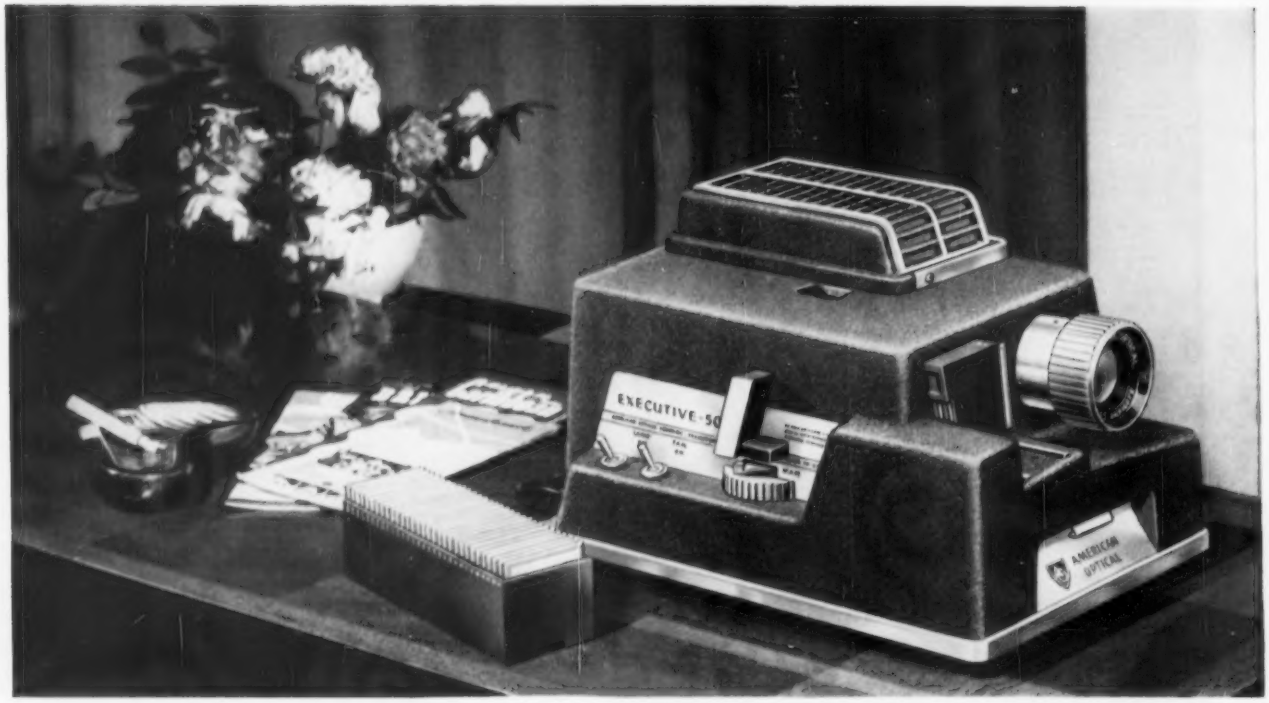

MORE BRILLIANT PICTURES . . . with an all new optical system. Big, new, precision $f/3.5$, 5″ lens coated with the exclusive Americote process gives truly professional results. Superior condensing system makes for greater illumination — and it's guaranteed against heat breakage.

NEW AUTOMATIC CHANGER . . . inserts, returns, refiles slide and advances tray all with one simple operation. Illuminated numeral indicated or located on the top of the projector shows position of tray and changer. New AO Filter eliminates blackout during slide changes for more comfortable viewing.

NEW UNIVERSAL "40" SLIDE TRAY . . . holds 40 slides of all type mounts. Accommodates two (2) complete rolls of 20-exposure film.

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Stop in at your favorite store and see the AO Executive. Note the massive lens, the smooth operating slide mechanism and the unitized control panel. Your dealer will be glad to show you how easily you can become a proud owner of the sensational new Executive.

LIFETIME CONSTRUCTION . . . All metal, made of lightweight, die cast aluminum, finished in attractive Charcoal Gray, chip-proof, baked enamel.

HANDY CONTROLS . . . on unitized instrument panel for greater ease of operation. Fold-a-way carrying handle, built-in for convenient portability.

PRESSURIZED COOLING . . . Motor driven blower assures 100% protection to film — keeps projector constantly cool for comfortable handling.

NEW LOWER LOUVER DESIGN . . . in snap-lock top directs both light and air upward and forward and away from the operator's face.

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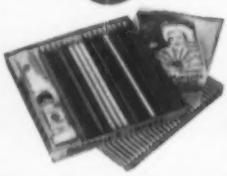

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STEREO TODAY by Robert L. McIntyre

The changeover from Kodachrome loads with processing and mounting included in their purchase price makes this a good time to review your own film and mounting requirements. Everyone who has been using Kodachrome now is forced to revise his procedure. Setting up a new system is no great problem. Things to consider are the type of pictures you like to take, whether you are primarily interested in stereo for hand viewing or projection, and how much time you are willing to spend on slide mounting.

Under the terms of the recent anti-trust consent decree by the U. S. Department of Justice, Kodachrome must be sold as a film, alone, at a price that does not include processing or other services. Processing formulas and techniques have been made available to independent laboratories. If you want Kodak processing you must return the film to your Kodak dealer, to be sent to the laboratory by him. Other laboratories offer the service, either through dealers or direct.

If you're a sunny-day photographer, you'll probably want to stick with Kodachrome. Its sharp definition and intensity of color have endeared it to most stereo fans. If you like to take pictures under a wide range of lighting conditions and have felt hemmed in by the slowness of Kodachrome, you might want to consider a switch to the new Ansco Color or to Ektachrome. Both are rated at ASA 32 in daylight in comparison with 10 for Kodachrome. That's a difference of 1½ stops, permitting a basic sunlight exposure of 1/150 at *f*/6.3 or, if you prefer, 1/50 at *f*/11. Neither of the faster films has the inherent sharpness of Kodachrome, but both have wider exposure latitude which gives you more shadow detail and less harsh brightness contrast. Their color quality is different; you have to judge it for yourself.

Regardless of what film you choose, the same alternatives are open to you for processing and mounting. If you have never mounted your own, this is a good time to try your hand at it. You can take it to your camera store to be sent away for processing, or send it direct to one of the independent laboratories. It will come back in one long strip. You'll need a film cutter and a supply of stereo masks; you can get set up for less than $10.

If you're interested only in slides for hand viewing, with never a thought of projection, cardboard mounts are the easiest and cheapest to use. They provide slots for your right and left transparencies. Just slip them in, following the manufacturer's instructions.

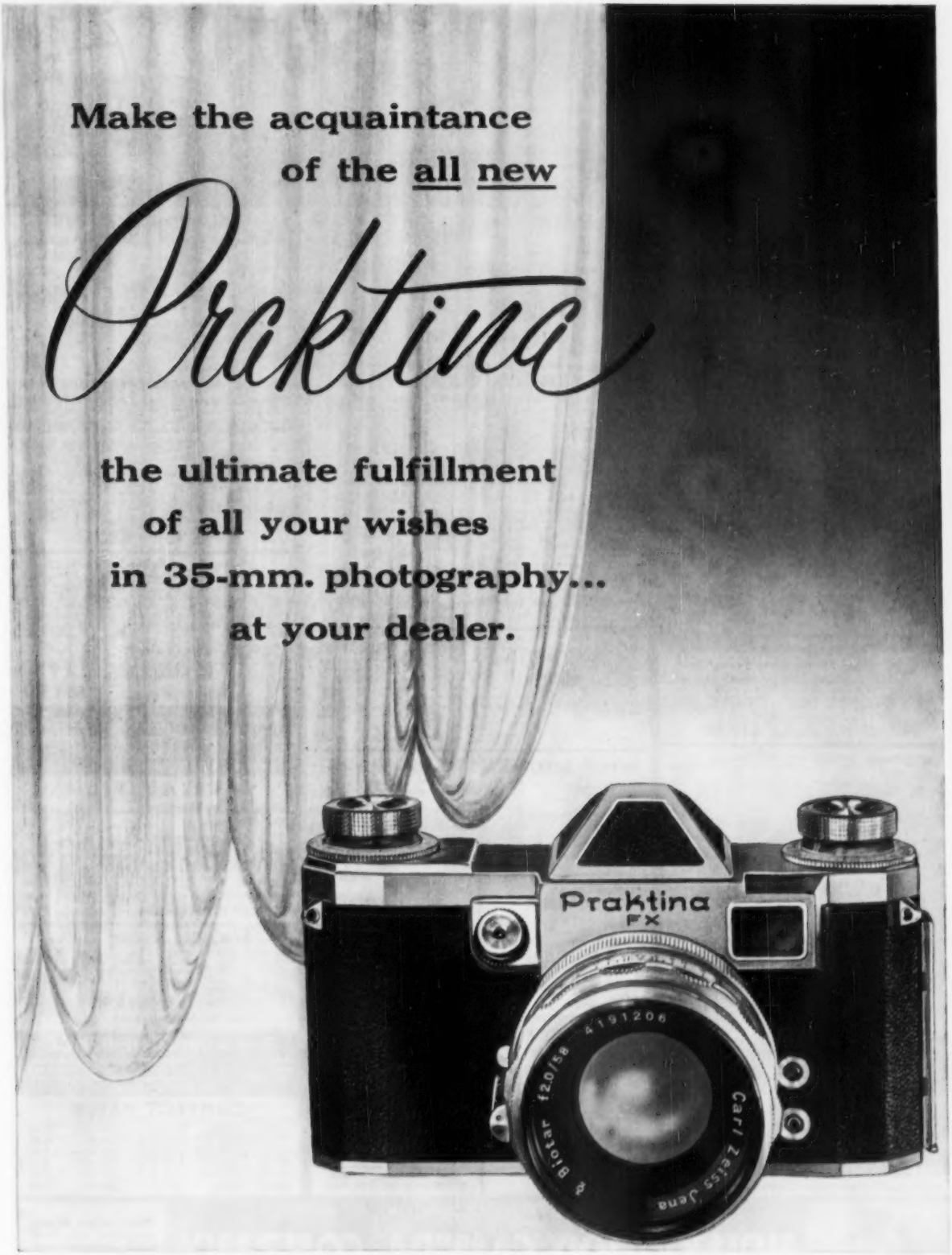
Mounting for projection is more exacting, but the precision it takes is built into the mounts themselves. Mounts that are designed for projection come in three types—normal, medium, and close-up. The normal mounts, sometimes called distant, are for scenes that contain a distance range from 7 feet to infinity. The medium mount is for scenes with subject matter at distances from 4 to 18 feet. The close-up mount covers the range from 2½ to 6 feet. When you use these mounts and project your pictures on a 50-inch screen, you can superimpose the picture apertures to create a stereo window at the screen and the picture itself will appear behind it. The mounts also align the transparencies so one is not higher, lower, or twisted in relation to the other.

It helps to keep the different projection mount ranges in mind when you are taking pictures. If you remember the principle of limiting the depth of your scenes as you approach near objects more closely, you will be able to select mounts to show all your pictures properly. Good mounting pays off in a smooth show, free from need for annoying adjustments.

Slide Services Stimulated

Suppose you don't want to do all your own mounting? The change in Kodachrome handling has stimulated the development and expansion of stereo-slide services. They will take your film after exposure, have it processed, and put the pictures in the type of mounts you select. Fans who don't elect to do all of their own mounting usually have their slides placed in cardboard mounts first, and then select the best ones to be placed between glass. A service that fits in well with this procedure is offered by Realist, Inc., at its main plant at 315 W. Court St., Milwaukee 12, Wis., and at branches at New York, N. Y., Buffalo, N. Y., and Hollywood, Calif.

The thinking behind the Realist service is that all slides ought to be placed in projection mounts to begin with. Then, when a fan gets interested in projecting his pictures, he doesn't have to do a big remounting job or—worse still—project his slides in their old mounts and constantly manipulate the projector adjustments to everyone's discomfort. The Realist service uses the same metal projection masks that the company sells for home mounting. Its operators look at your pictures as they work and select normal, medium, or close-up masks depending on the depth range of each shot. The masks containing your transparencies then are placed in cardboard folders. The cost of this service, called Realist precision hand mounting, is $1.65 per 20-exposure (16 stereo) roll plus the standard processing charge—$1.50 for Kodachrome. A different service includes placing the mask between a pair of clear plastic sheets for added protection before it is bound in cardboard. This is called Deluxe mounting, costs $2.65. If you decide you want to project slides mounted by either of these systems, all you have to do is remove them from the cardboard folders and place them between sheets of glass. You don't have to touch the film. It remains in the metal masks.—▶



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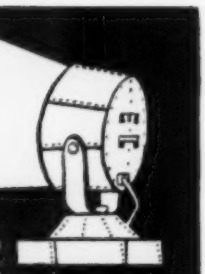

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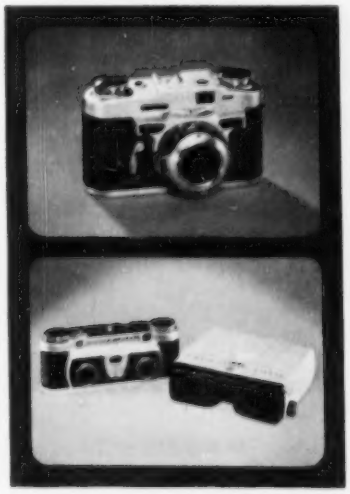

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35-mm TODAY by Bob Schwalberg

Interchangeable lenses by the carload

Ten years ago, if memory serves correctly, only five 35-mm cameras featured interchangeable lenses. These were the Leica, Contax, Kine-Exakta, Robot, and Ektra. All told, there probably weren't more than 50 or so lenses made for these boxes, not counting then-obsolete glassware. The long and the short of lenses then marketed were 500-mm (Zeiss' *f*/8 Fern) and 28-mm (Leica's *f*/6.3 Hektor and Contax's *f*/8 Tessar).

Including those multi-named miniatures which are distinguishable only by their variously lettered escutcheons, and all the models of the same cameras now in production, more than 60 currently produced cameras (including, among others, the ubiquitous Argus C-3) now bring the blessings of interchangeability to the photomasses. To feed all of these hungry maws, and keep the average photographer perpetually dissatisfied with the contents of his bulging gadget bag, six million lenses of every size, shape, and ilk are eagerly offered.

Well, maybe not six million. Say 500, maybe more. Aside from the sheer weight of merchandise, the variety of focal lengths is staggering. The longest miniature-camera lens now available is Astro's 1,000-mm tele. Shortest is Zeiss' 21-mm *f*/4.5 Biogon. Probably the best way to make sense out of what lies between these extremes is to break them down into groups of related focal lengths.

1. *Wide-angle lenses.* Focal lengths from 21- to 35-mm. Angle of view across diagonal of standard 24x36-mm negative format, 63 to 90°.

2. *Semi-wide-angle lenses.* Focal lengths from 40- to 45-mm. Angle of view 50 to 57°.

3. *Normal-focus lenses.* Focal lengths from 50- to 60-mm. Angle of view, 40 to 46°.

4. *Medium-long-focus lenses.* Focal lengths from 75- to 135-mm. Angle of view, 18 to 32°.

5. *Long-focus lenses.* Focal lengths from 150- to 300-mm. Angle of view from 8 to 16°.

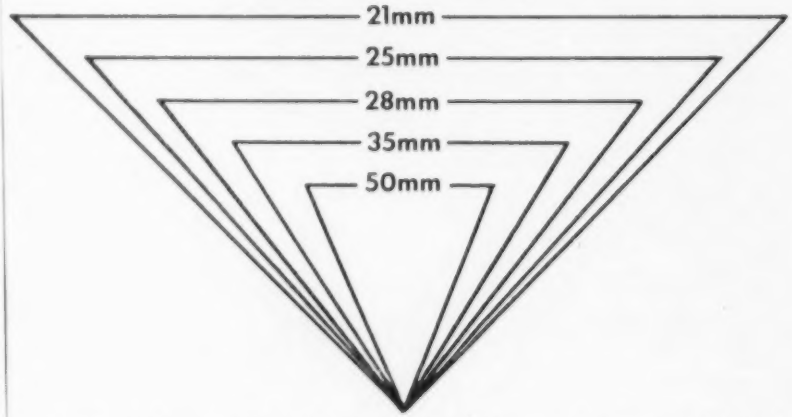
6. *Very-long-focus lenses.* Focal lengths from 400- to 1,000-mm. Angle of view, 2 to 6°.

In the wide-angle grouping, the 35-mm focal length is by far the most important. Hobbyist and professional unite to make this the number one "second" lens after the normal 50-mm focal length. Many photographers actually use this lens more than the 50-mm, and a small but enthusiastic minority has long claimed that the 35-mm should be considered "normal" focal length for the 24x36-mm film format. Conventional speed ranges from *f*/4.5 to *f*/2.5, with *f*/3.5 and *f*/2.8 very common. Look for more speed in this focal length. The 35-mm Fujinon *f*/2 has been marketed for some time, and two major producers will have 35-mm *f*/1.8 lenses by mid-'56.

Camera angle opens up widely as we go to 28-, 25-, and 21-mm wide-angles, the latter covering a full 90°. With increased field come increased problems, however, because when the lens includes more subject matter the need for squaring the camera in relation to horizontal and vertical subject lines becomes critical. Small discrepancies which may not cause noticeable harm with normal or even 35-mm lenses will frequently ruin pictures made with the super-wide 21-, 25-, and 28-mm lenses. When you must have the angular coverage, however, there's no substitute for them.

Semi-wide-angle lenses of the 40- to 45-mm grouping also have their adherents as successors to the 50-mm lens' normalcy. Legend has it that 40- or 42.5-mm was the original choice to be the Contax'

Wide-angle lens fields compared



Lens angle of view is usually given in terms of the 24 x 36-mm negative diagonal. Angles subtended are: 50-mm, 46°; 35-mm, 63°; 28-mm, 75°; 25-mm, 83°, 21-mm, 90°. Figures rounded off.

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LEICA PHOTOGRAPH BY ROBERT FRANK

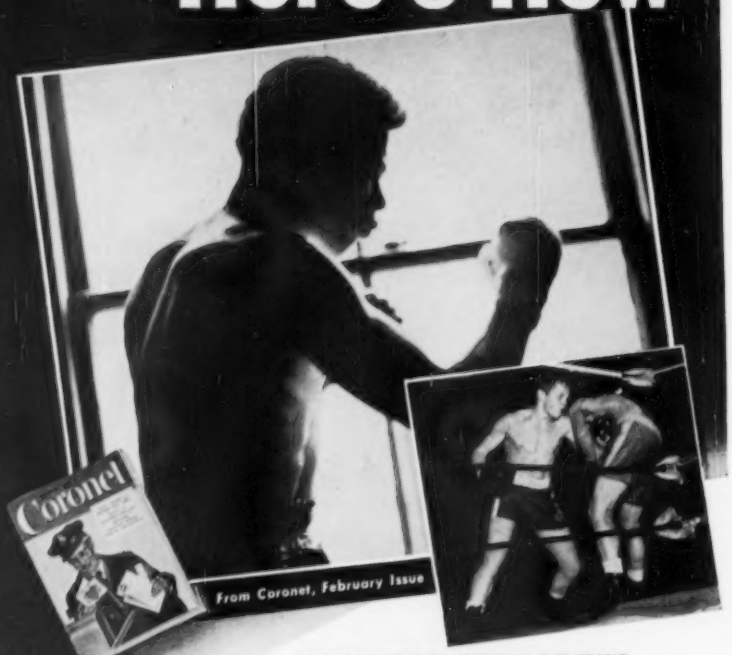
standard lens, and Zeiss did make a number of both lengths as f/2 Biotars some twenty years ago. Today, however, to our knowledge, only one lens in this grouping is being offered for rangefinder miniatures, and their primary application seems to be for the 35-mm single-lens reflex whose mirror movement prevents the use of normal wide-angle constructions with focal lengths less than about 40 mm in most cases. To get around this, the French firm of Angenieux has produced its famous 28-mm and 35-mm retrofocus wide-angle lenses. This special optical construction can be likened to a "reverse telephoto" in which the optical center of the lens is actually somewhere in space behind the rear element of the lens. Therefore, the mirror is unimpeded. Forty-four- and 45-mm lenses are also widely used as *the* lens on many inexpensive miniatures which do not provide lens interchangeability.

The ". . . to 60-mm . . ." was included in the normal-lens category only because such lenses are frequently supplied as standard optics on single-lens reflexes. The reason is that in many cases the designers have found it easier to meet the special requirements of through-the-lens focusing by going to a slightly longer focal length. Fifty-eight mm is the most common choice. Aside from this, however, the 50-mm is the number one miniature camera lens. And, despite the enthusiasm of the 35-mm and 40-45-mm sets, this reporter believes that the "fifty" is the single most useful focal length ever devised for the miniature camera. The 50-mm lens sits right between the two most popular, and we believe, most useful extra lenses, the 35-mm and 85-mm focal lengths. The diagonal-field angles are 63° for the 35-mm, 46° for the 50-mm, and 29° for the 85-mm. Statistics aside, the 50-mm is the lens which most 35-mm photographers use to make most of their pictures. Many an experienced 35-mm man has started out with the 50-mm as his only lens while he longed for a set of interchangeable long- and short-focus lenses. What usually happens is that they really discover the 50-mm lens only after they've assembled an expensive collection of wide-angle and tele lenses. It's also interesting that among photographers with large lens collections, the 50-mm focal length is most frequently the only one that's duplicated, and we'd guess that among 35-mm magazine pros, at least 50% own two 50s. So if you haven't been able to round up the price of that wide-angle or tele you crave, relax and use that two-incher!

Although lens speeds in general are on the upswing, it is in the 50-mm field that this mania has reached its heights. Anyday now I expect a 50-mm f/zero-point-something to hit the market for 35-mm still photography. Not that I have any such information about any manufacturer's intentions. It just seems to be the logical conclusion to things that are happening now. This is a shame because, in this reporter's private opinion, no maker's 50-mm f/3.5 lens is as good as some speed lens made by the same maker, closed down to the same f-stop. And, our optical

(*Continued on page* 197)

"Here's How



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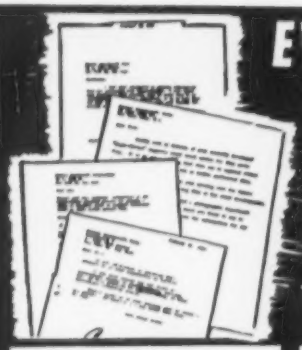

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135mm f3.5 Angenieux	89.50	52.50
135mm f2.5 Angenieux	179.50	107.50
7" f2.5 Auto Ektar, foc. mount	174.50	139.50
200mm f4.5 Steinheil Quinar	149.50	99.50
400mm f5.5 Meyer Tele Megor	199.50	94.50
500mm f5 Telon	450.00	229.00
600mm f5 Telon	565.00	337.00
800mm f5 Telon	750.00	419.00

LEICA CONTAX NIKON SALE

	New	Used
Contax I, f3.5 Tessar	—	$ 41.95
Contax II, f2 Sonnar	—	74.00
Contax III, f2 Sonnar	—	88.95
Contax IIA, f2 ctd Sonnar	$345.00	134.00
Contax IIA, f1.5 ctd Sonnar	376.00	154.50
Contax IIIA, f2 ctd Sonnar	383.00	148.95
Contax IIIA, f1.9 ctd Sonnar	412.00	178.00

	New	Used
Leica IIIA, f2 Summar	—	$ 78.50
Leica IIIC, f3.5 ctd Elmar	—	85.95
Leica IIIC, f2 ctd Summitar	—	95.50
Leica IIIF, f3.5 ctd Elmar	237.00	124.00
Leica IIIF, f2 ctd Summitar	268.00	142.00
Leica IIIF, f1.5 ctd Summarit	357.00	171.50
Leica IIIF, f2 ctd Summicron	336.00	146.00
Leica M3, f2 ctd Summicron	447.00	255.00
Leica M3, f1.5 ctd Summarit	468.00	299.00
Nikon S2, f1.4 ctd Nikkor	345.00	219.00
Nikon f2 ctd Nikkor	269.00	189.50
Nikon f1.4 ctd Nikkor	299.95	162.50

LEICA LENS SALE

	New	Used
35mm f3.5 ctd Elmar W.A.	—	$ 36.00
35mm f3.5 ctd Summaron W.A.	$ 96.00	54.00
80mm f2.8 Zeiss Tes. pre-set	109.50	59.50
85mm f2.0 ctd Steinheil	69.50	32.00
85mm f1.5 Summarex	360.00	—
90mm f4 ctd Elmar	90.00	54.50
105mm f4.5 ctd Kodak Anast	—	32.50
135mm f4.5 Hektor	135.00	67.00
200mm f4.5 Leitz Telite, with Reflex housing	258.00	134.50
400mm f5 Astro with Reflex housing	490.00	217.50
600mm f5 Telon, with Reflex housing	715.00	365.00
800mm f6.3 Telon, with Reflex housing	900.00	475.00

16mm PROJECTOR SALE

	New	Used
B & H 215 A 750w. Case	$199.95	$ 98.00
B & H 175 750w. Case	299.95	150.50
Keystone A 82, 750w	139.50	62.00
Keystone K 161, 750w	159.50	73.00
Revere 48, 750w	182.50	73.50

16mm BOLEX H-16

- 17mm f2.7 Coated Wide Angle
- 25mm f1.9 coated
- 75mm f4.5 Telephoto all in focusing mount

USED 217

SIGNET COMBO

Includes: Camera-Case-Flashgun. Fast f3.5 coated Ektar, Coupled rangefinder, viewfinder. List 91.45

Used ... **37.95** Estimate & incl post

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f3.5 Tessar Pre-Set. Brand-new disc f. model. Focal plane shutter, 12 sec to 1/1000; New exposure counter.

127.00 New — Estimate & incl post

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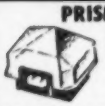

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FOR 8mm CAMERAS

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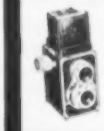

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2¼x3¼ Pacemaker Crown, f4.5 cpld RF	299.50	117.50
2¼x3¼ Ann Speed Graphic, f4.5 ctd. cpld RF, flashgun	219.50	80.50
3¼x4¼ Ann Speed Graphic, f4.5, cpld RF, flash	—	83.50
3¼x4¼ Pacemaker Crown, f4.7 cpld RF, flash	—	117.50
4x5 Ann Speed, f4.7 cpld RF, flash	249.50	87.00
4x5 Pacemaker Speed, f4.7 cpld RF, flash	348.00	167.50
4x5 Linhof, f4.5, cpld RF, flash	427.50	197.50
4x5 B&J, f4.5, cpld RF, flash	265.00	87.50
4x5 Busch, f4.5, cpld RF, flash	263.00	89.50

35mm SALE

	New	Used
Argus C-4 f2.8 RF MX	$ 84.50	$ 39.50
Balsey B-2, f3.2 Outfit	66.50	27.50
Balsey B-22 ctd f3.2 RF	61.50	32.75
Balsey C, f3.2 ctd RF	89.50	38.00
Contessa, ctd f2.8, RF MX	—	69.50
Contaflex I, ctd f2.8 Tessar	169.50	77.95
Contaflex II, ctd f2.8 Tessar	199.50	122.00
Graphic 35, f3.5 Case flash	66.50	33.50
Kodak 35, f3.5 RF	85.00	27.50
Kodak Signet, ctd f3.5 Ektar, RF	75.00	38.00
Kodak Pony 135, f4.5	29.75	18.50
Kodak Retina II, f2 Xenon RF	—	49.50
Kodak Retina IIA, f2 RF-MX	127.50	66.50
Kodak Retina IIC, ctd f2.8 RF	135.00	88.00
Kodak Retina IIIC ctd f2 RF	190.00	112.00
Praktica, f2.8 ctd Tessar	139.50	49.50
Voigt Prominent, ctd f2 RF MX	220.00	122.50
Voigt Vitessa, ctd f2 RF Sync.	127.50	71.75

2¼ x 2¼ REFLEX CAMERA SALE

	New	Used
Ciroflex D, ctd f3.5	$ 84.00	$ 31.75
Ciroflex E, ctd f3.5	99.50	38.50
Exakta 66, f2.8 Tessar	319.50	176.50
Graflex 22, ctd f3.5 sync	93.50	42.50
Ikoflex IIA, f3.5 Auto	126.00	70.50
Ikoflex IA, f3.5 Tessar	99.00	57.00
Kodak Reflex I, ctd f3.5 K.A.	137.93	38.30
Kodak Reflex II, ctd f3.5, Sync	155.00	47.50
Master Reflex, f3.5 Primotar	185.00	117.50
Mamiyaflex Auto, ctd f3.5	179.95	89.00
Minolta Autocord, ctd f3.5	99.50	58.50
Rolleiflex II, f3.5	69.50	24.50
Rolleicord III f3.5 Xenar	—	56.50
Rolleicord V, f3.5 Xenar	134.55	75.95
Rolleiflex, Sync, f3.5 ctd Tessar	—	99.50
Rolleiflex MX, f3.5 Xenar	217.50	112.90
Rolleiflex MX, f3.5 Tessar	232.50	121.00
Rolleiflex MX, f2.8 Xenotar	291.50	171.50

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	New	Used
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Bolex B-8, f2.5 3-Fver Turret	119.50	63.50
Bolex H-8 Leader, f1.9	259.50	140.50
Keystone Olympic, f2.5	79.95	43.50
Revere 88, ctd f2.5	74.00	29.00
Revere 84, ctd f1.9 Turret	147.50	81.50
Revere 44 f1.9 Mag Turret	154.50	89.50
Revere 8-63, f2.8 Mag	142.50	81.50

8mm PROJECTOR SALE

	New	Used
B & H 253 Monterey 500w	79.95	48.50
Bolex M-8 500w, case	169.50	79.00
De Jur, 1000w	167.50	104.50
Keystone K109, 750w	149.50	73.50
Revere, 500w	114.50	48.00
De Jur 750	159.50	72.50

16mm CAMERA SALE

	New	Used
B & H 200T ctd f2.5	174.95	107.75
Cine Kodak K100, f1.9	269.00	149.00
Kodak Royal Mag, ctd f1.9	169.50	104.00
Keystone A 12, ctd f1.9 Turret	159.50	87.00
Keystone A 9, ctd f2.5	99.50	55.00
Keystone K 55, ctd f1.9	174.50	94.50
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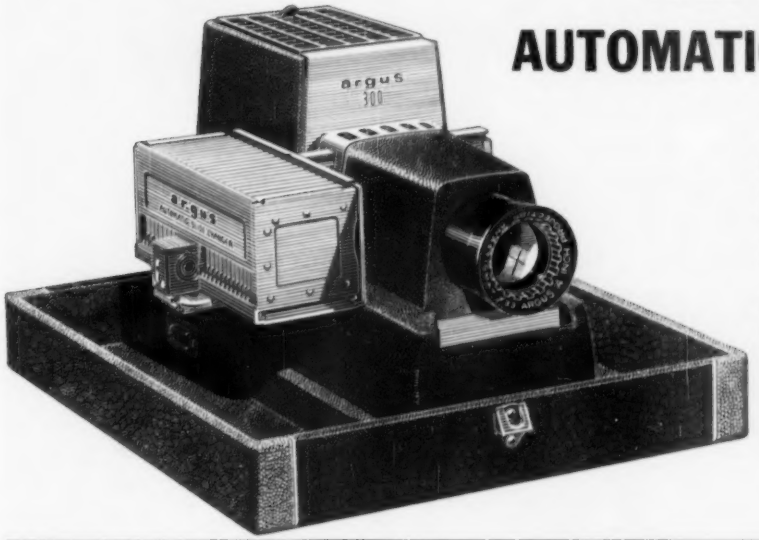
Are you doing your color slides justice?

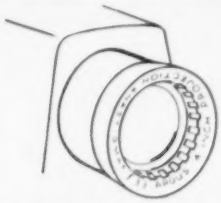
ALL-NEW ARGUS AUTOMATIC 300 PROJECTOR



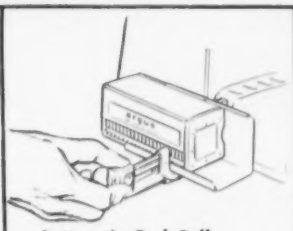
You've taken wonderful color slides with your 35mm camera. The light was right, composition was right, settings were right. Now show your slides with the new Argus Automatic Projector and you'll really do your picture-taking ability full justice.

This newest and finest Argus projector makes your pictures leap to life with amazing new brilliance and a vivid depth of color—brings out the full picture value of your transparencies.

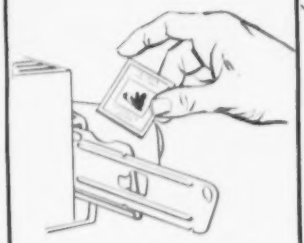
$59.50 *complete with carrying case, slide magazine and Slide Editor*



New Optical System For Brighter-than-ever Pictures
A new, scientifically perfected condenser system allows more light to pass through a new precision, 4-inch f:3.3 wide-angle lens—to give you big, brighter-than-ever pictures even in a small room. No dimmed-out edges. No hot spots. Helical focusing assures uniform, needle-sharp projection.

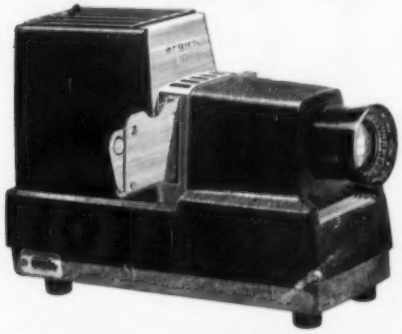


Automatic, Push-Pull Operation—Just a quick push-pull of the operating lever automatically shows and changes your slides, then returns them to the magazine in perfect indexed order all ready for the next showing. 36-slide frame aluminum magazine protects slides from dirt and dog-earing. Your fingers never touch precious transparencies.



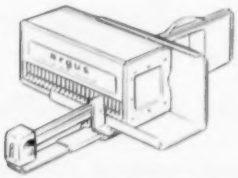
New Slide Editor—Gives you an easy way to view single slides—lets you edit and arrange them in the magazine in story-telling sequence. New push-bar elevation lets you center pictures on the screen quickly and easily.

Cooler-than-ever Operation
A new airflow cooling system, including a big powerful blower, keeps slides and projector safely cool. You can give slide shows that can last just as long as you like without overheating your projector.



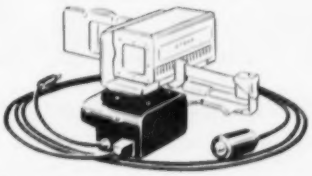
New Argus Standard 300 Projector
All the fine precision optical features of the Argus Automatic. And the same handsome new styling and durable, all-metal construction.

At a new low price of **$37.50** *complete with carrying carton*



Argus Automatic Slide Changer
You can convert the Argus Standard Projector to easy automatic operation with this quick-to-attach slide changer. And slide magazines can be changed in seconds. You just slip the magazine out and slide another in. Slides cannot fall out.

Only **$14.95**



New Argus Remote Control Power Unit
Lets you run your slide show from anywhere in the room just by pushing a button on the compact hand-fitting switch. Handsomely and compactly styled, it attaches easily to any Argus Automatic Slide Changer.

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MANY MORE FEATURES . . . including film type and ASA reminder, accessory clip, shutter release guard, sturdy die-cast alloy body . . . *and the price, only $119.50 plus case.*

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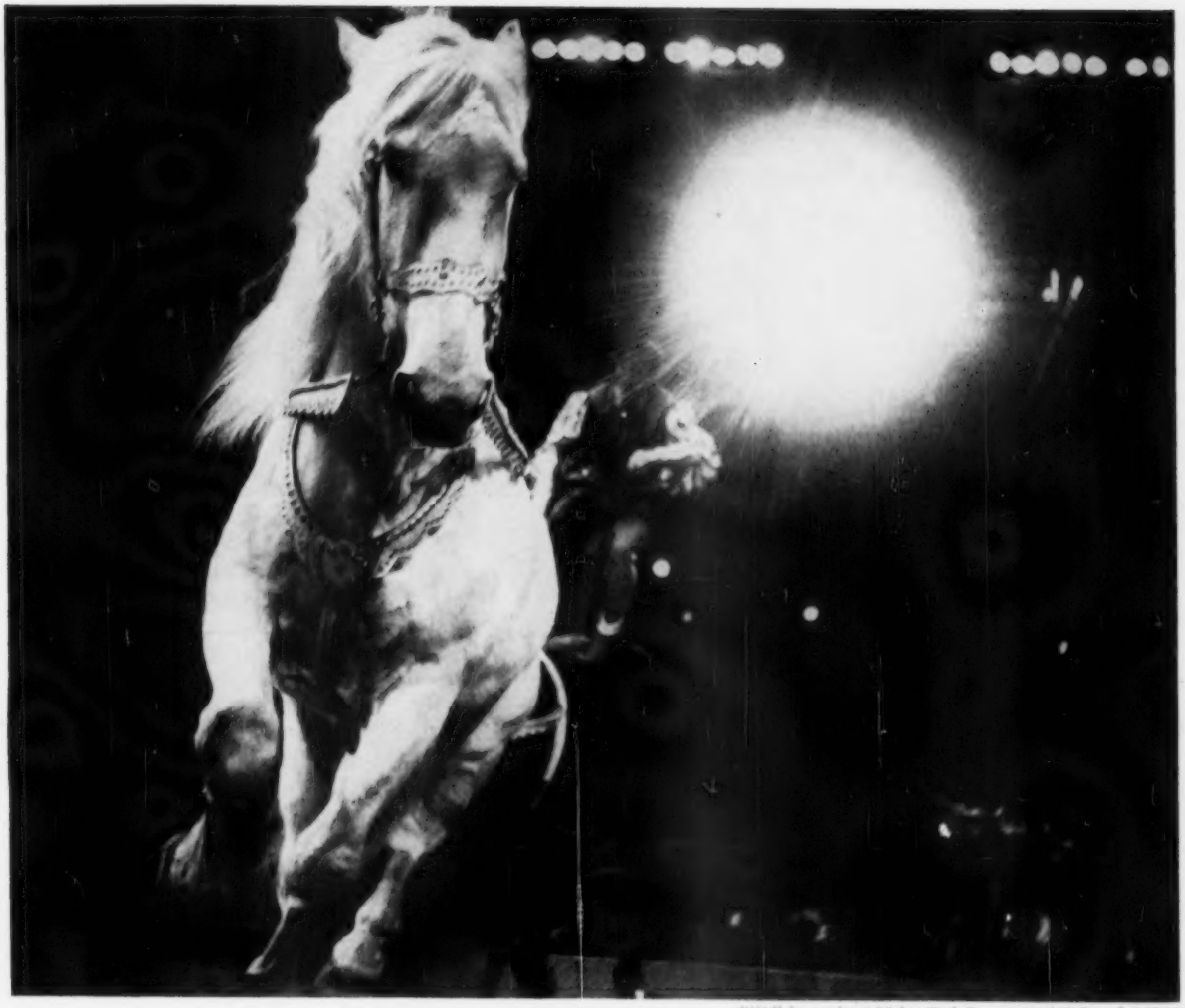

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A famous technician solves your problems

I have read recently that Eastman Kodak Company has introduced two new materials for color printing. Is either of them suitable for an amateur who makes color prints in his own darkroom?—J.F.X.R., Kansas City, Mo.

You are probably referring to the new Kodak Color Print Material Type C and Type R. Type C is designed for making prints from Ektacolor and Kodacolor negatives; the Type R is based on a reversal process that is designed for making prints from Kodachrome or Ektachrome transparencies. As to the suitability of using them for amateur color printing, it is a very *iffy* kind of question. The Type C material requires rather elaborate electronic equipment for best results and is principally suited to photo-finishing production. The Type R material could possibly be used very well by an advanced amateur who is a good and careful technician. The only really essential equipment that is expensive is a set of filters. Because the material is very sensitive to heat, a special infrared filter is required which costs quite a bit of money. This heat sensitivity also means that you must keep the material stored at 50 F or lower. But the processing solutions can be purchased in a kit as small as one gallon.

I should think that with some experimenting and a rigid observance of proper technique, very satisfactory prints could be made at moderate cost once the initial filter set was purchased. Results I have seen on this material were quite good, although admittedly they were exhibition pictures. Perhaps we would do better not to say "amateur" but to say that "advanced technicians" would do very well with the new Kodak Color Print Material Type R.

Ektachrome for Box Cameras?

Now that the new Ektachrome film has come out in roll sizes and with higher speeds, is it practical or possible to use it in a simple box camera?—M.W.M., San Antonio, Texas.

Kodak recommends the use in simple cameras of Kodacolor negative film which has an effective daylight exposure index of 32, so there is no reason why Ektachrome E-2 and the new Anscochrome which are rated at 32 can not be used in simple cameras if: the cameras have fast enough lenses, the lens and/or shutter speed can be adjusted, and care is taken in processing.

Some time ago, I made a series of tests for a manufacturer where I shot many rolls of the new Ektachrome and Anscochrome Daylight films out of doors with inexpensive cameras and even some shots indoors with blue flashbulbs. I also used the blue flashbulbs for fill, out of doors. Frankly, I was amazed at how good some of these pictures were. I found the Kodak Duaflex Camera with the f/8 lens ideal, and even made some pictures under adverse lighting conditions where I raised the effective speed of the film in processing.

Although the lenses on these cameras can not be compared critically with those on cameras costing several hundred dollars, most of the pictures were quite satisfactory and really better than I had expected.

Color Shooting Abroad

I plan to spend several months in Europe, photographing as I go. I use a Practiflex and only shoot color. Would the use of the new Anscochrome be advisable? What about filters, a Polascreen? Other accessories? Would a Contina with a Novar lens be a good second camera? What do you suggest?—S. S., Los Angeles, Calif.

Although there are several questions all rolled into one here, they're pretty much on the same subject. First recommendation for anyone going to Europe is to get a copy of the Kodak booklet *Vacation Europe with your Color Camera;* costing only fifty cents, it's crammed full of advice and suggestions on things you will want to photograph. In many places, it actually tells what exposures to use on certain Kodak films. If you use the new Anscochrome, you'll just have to make calculations, for this film is almost three times as fast as Kodachrome. As to whether you should use it or not, make some tests with it and see how well you like it. It has been getting excellent reports, but the decision to switch over from whatever you are now using and are familiar with must necessarily be up to you.

By all means take a Polascreen with you as well as a Skylight or UV filter. An adequate supply of flashbulbs or a small speedlight unit for fill-in or indoor picture use might be smart, too. Most important accessory for any camera, I think, is a lens shade; don't forget it! Your photo dealer may be able to get you a copy of a little Kodak Pamphlet (C-17) called *Notes for the Photo Traveler Abroad* which also has excellent travel suggestions no matter what kind of film you use.

As to whether the Contina is a good

(*Continued on page* 170)

Questions of general interest to the color photographer will be answered in this department. However, individual replies can not be given for questions that are not used.—Ed.

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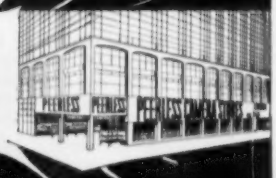

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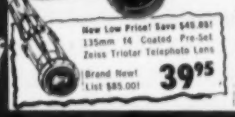

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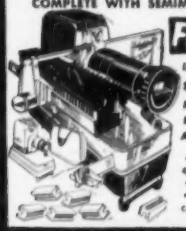

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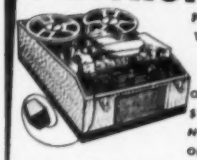

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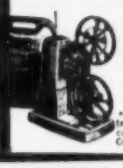

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Contaflex II, Auto f2.8 Tessar ¢*, R.F.	199.50	127.95
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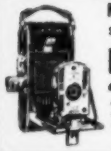

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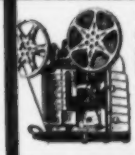

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Bolex C-8 f2.8 Vvar ¢	89.50	Used 52.95
Bolex H-8 Leader, f1.9¢	269.50	Used 140.95
Kodak Brownie f1.9¢	46.75	30.95
Keystone K-32 Olympic f2.5¢	79.95	43.95
Revere 88 f2.5¢	74.00	30.95
Revere 84 f1.9 Turr	147.50	81.95
Revere 40 f2.5 Mag ¢	99.50	49.95
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De Jur 750 W Case	159.50	72.95
Keystone K70C 500 W Case	69.50	38.95
Keystone K95, 750 W., Case	119.50	65.95
Keystone K109V, 750 W. Case, Spicer	159.50	73.50
Revere 85, 500 W., Case	124.50	47.95
Revere 90, 750 W., Case	159.50	63.95
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Polaroid Highlander, ¢*	69.95	35.95
Polaroid Pathfinder f4.5 RF	249.50	142.95
Super Ikonta B, f2.8¢*	139.00	89.95
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A.O., 300 W., Automatic, Case	59.50	30.95
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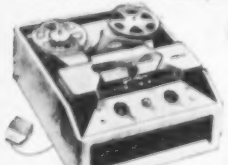

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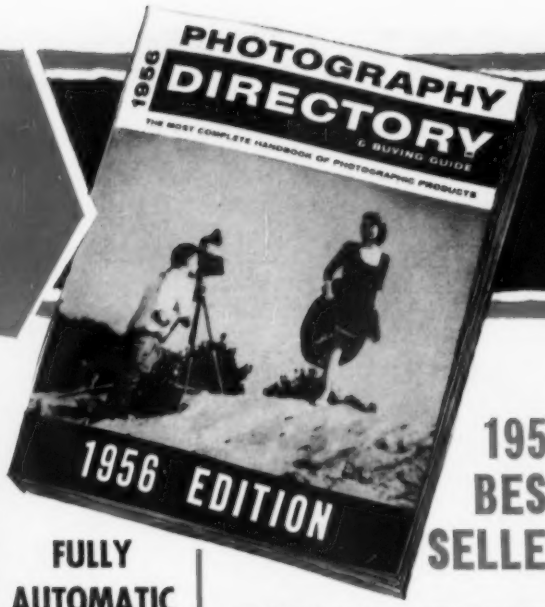

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CAMERA CLUBS by Whit Hillyer

If you could examine the beefs I see regularly regarding the need for common-sense competition judging hither and yon, you'd welcome (as I did) a recent bulletin from New York's *Metropolitan Stereo Club*. These folks have instituted a "school for judges," to inform the membership on judging criteria and, more important, to build up a group of competent arbiters within their own midst. The "school" is a regular part of each bi-monthly competition night now.

An idea of just what goes on here can be gleaned from a few "Stereo Club News" quotes, as follows: "A different panel is assigned to each competition . . . including one experienced judge. . . . The less competent judges will discover by their own scores the weaknesses in their evaluations. . . . They will have an opportunity to improve themselves and gain experience. . . .

"It is not the intention to lay down rigid rules for judging, but rather to develop an appreciation for the elements that make a slide effective. . . . Such penalties as may be based upon a defective opinion will not reflect upon the slide maker, since there will always be a weighted affirmative opinion within the majority of the panel. . . . If MSC developes a handful of really good judges, it will have contributed toward better appreciation of stereo. . . ."

This is an interesting experiment, and could pay off for the club in the long run. If you'd like to check directly on its progress, drop a line to president Bart Brooks, Metropolitan Stereo Club, 115 East 40th St., New York, N. Y.

For Your Correspondence List

The following clubs would like to hear from you, to exchange ideas:

Sidney Camera Club, D. D. McGuire, secretary-treasurer, 413 Second St., N.E., Sidney, Mont. As yet this club has no bulletin, but it has prepared circulars describing its aims and activities. These are left at film counters for distribution to interested individuals. You might find a copy worth sending for.

St. Francis Minor Camera Club, John M. Rice, president, St. Francis Minor Seminary, 3600 S. Kinnikinnic Ave., Milwaukee 7, Wis.

Photographic Society of Maharashtra, C. M. Natu, secretary, 418 Shanwar Peth, Poona 2, India. This group was organized in August 1955, and is anxious to get copies of photographic magazines.

Lackland Air Force Base Camera Club, c/o A/B Jimmy McCarroll, Box 1535, Lackland AFB, San Antonio, Tex.

West Point Camera Club, Miss Elizabeth Brown, secretary, West Point, Ind.

Lever Brothers Camera Club (formerly Klik Klak Club), Renee Deutsch, secretary, 390 Park Ave., New York 22.

Capitol Camera Club is newly organized and would appreciate any ideas or exchange of correspondence. Address this club in care of the program chairman, Eugene Munger, Jr., Box 133, Montgomery, Ala.

Healdsburg High School Camera Club, c/o R. A. Crepeau, Healdsburg, Calif.

Lakehead Camera Club, c/o F. C. Morice, 330 S. Archibald St., Fort William, Ontario, Can.

We hear *New York Color Slide Club* collected "funny" slides from members, to be shown at the annual dinner. You can imagine the hilarity this sort of thing could generate. As long as people don't mind a good laugh at their own expense there can't be room for stuffed shirts. I commend this gimmick to you all.

In less than a year, *Ridge Camera Club*, Lake Wales, Fla., grew from a group of interested people with no place to meet to a membership of around 50 with a seven-room headquarters. One room is an air-conditioned darkroom, the others include projection room, studio, meeting room, and exhibition galleries. This is progress, for sure.

Received an unusually attractive year's program from the *f/2 Camera Club*. Looks like a very full schedule of activities. Annual dues only $1. If you want to find out how they make it go so well at those prices, drop a line to the president, Dr. H. B. Atkins, 5625 Park Oak Ave., Hollywood 28, Calif.

From the *Watsonville* (Calif.) *Camera Club's* bulletin "The Lens" I see that one assigned print subject was Curves. Said the editor: "With a subject like this your imagination could run riot." Yes, indeed. Wish I could have seen those prints!

After 24 years of distinguished service to community and to amateur photography nationally, *Oklahoma Camera Club* is going along better than ever. This group hosted the 1947 PSA convention, bringing the conclave west of the Mississippi for the first time. Comes now a copy of Oklahoma's 1955-56 yearbook, which is a model for such publications.

Fine Art Camera Club (Evansville, Ind.) is in its 20th year.

No sooner did Chicago's educational television station WTTW-TV go on the air than the camera clubs moved right in to conduct some highly informative programs for Windy City amateurs. Among headliners during the first few shows were top theatrical portraitist Maurice Seymour and the *Bell & Howell Camera Club's* John Rosenheim and Ted McNabb with timely advice on shooting the Christ-

(*Continued on page* 173)

Is your club on our mailing list? If not, please send name and address to: POPULAR PHOTOGRAPHY, Department 307, 366 Madison Ave., New York 17, N. Y.

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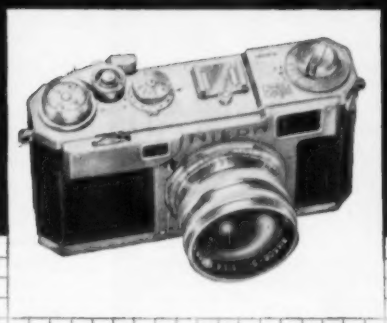

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Ed Hannigan in U.S. Camera, March, 1955

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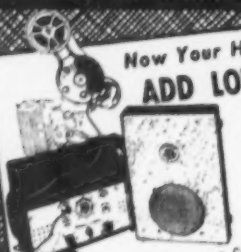

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Canon IV S2 f/1.8	163.	163.	190.	256.
Leica III F-f/2 Summitar	133.	133.	169.	226.

	Retina IIIC	Contaflex I	Vitessa L f/2	Contaflex II
Argus C3, case, flash	$120.	$105.	$97.	$129.
Balsey B2, case, flash	120.	105.	97.	129.
EK Signet	107.	92.	84.	119.
Kodak 35, RF	122.	107.	99.	130.
Retina IIA	80.	65.	57.	88.
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Sekonic L-3B w/case	27.95	20.95
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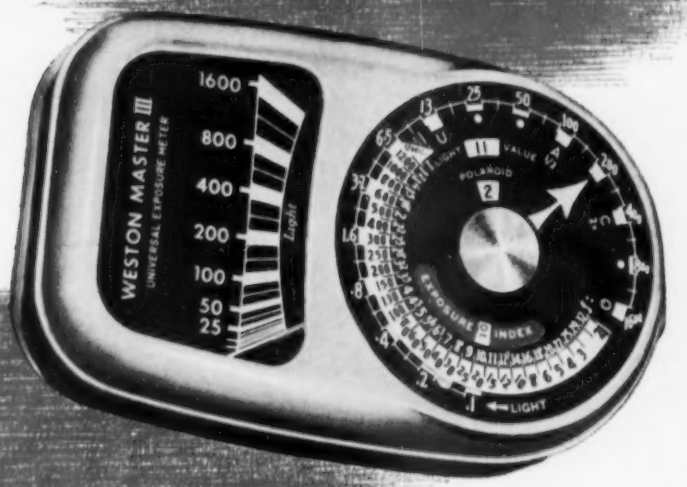

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CANDID SHOTS by the Editors

Contest: the Time Is Now

There are two dates connected with the 1956 POPULAR PHOTOGRAPHY International Picture contest. One is March 6, the opening date for entries. You don't have to worry about that one. The other is June 30, the closing date. That's the one to mark on your calendar. But why not play it smart? Give yourself a "cushion" of a few weeks, a month. Aim at getting your pictures to the Contest Editor that much ahead of time. That will allow for the unexpected and the unavoidable, which always happen. Don't lose your chance at the $25,000 in prizes. Chances are that right now you are using the same camera, film, and enlarger as the photographer who will win the top prize. In fact, maybe it's you! Contest rules and entry blank are on pages 184-185.

Two Books for Your Shelf

Spring is a rush season here at POP PHOTO. Within the next six weeks, two indispensable books will be at your disposal. The two are as different as two photographic volumes could possibly be, yet every amateur and professional will want both. Just two weeks behind this May issue of the magazine comes the new edition of PHOTOGRAPHY DIRECTORY, the only book that lists every camera and piece of equipment available in the U. S., with thousands of illustrations. And a month after that, in mid-May, the first edition of COLOR PHOTOGRAPHY ANNUAL will be on newsstands. It too is one-of-a-kind; the only annual ever to be devoted entirely to color photography. Reserve copies of both to be sure you don't miss them.

Better Living Baby Contest

There's another contest announced in this issue, beside our own. It's the 1956 Baby Picture Contest, sponsored by *Better Living* magazine and featured in our story, *Josef Schneider Tells How to Photograph Children*, on page 66. The subject must be a child under five years old, and any U. S. or Canadian amateur can enter. Top prize is a big color television set, other awards are valuable photographic merchandise. Check the rules in this issue, and try for a prize with a color shot of your baby, or your neighbor's. There's nothing like the thrill of competition!

For an Error, A Citation

The late Fiorello LaGuardia used to say, "When I make a mistake, it's a beaut!" Two months ago, POPULAR PHOTOGRAPHY made one of the most conspicuous errors of its 19-year history. To call attention to the picture feature, *San Francisco Weekend*, we headlined it on our cover. But the city's name was spelled "San Franciso!" We did not realize the mistake until all copies had been printed, so all we could do was withdraw into our shell and wait for the heavy weather to arrive from the West Coast. As a matter of fact, not a single reader anywhere wrote to call our attention to the colossal "typo." But it did not, of course, go unnoticed. The San Francisco Chamber of Commerce prepared a Citation which reads in part: "The Chamber of Commerce commends POPULAR PHOTOGRAPHY Magazine for the ingenious way in which it contrived to fit the City's 13-character name into a 1⅞-in. space on the front cover, providing for but 12 characters and a colon, resulting in a new spelling of San Francisco which the Chamber of Commerce agrees to accept for the duration of one day only, in deference to the ingenuity of POPULAR PHOTOGRAPHY: 'San Franciso.'" Our humble thanks to the good-humored Chamber of Commerce. We promise never to let it happen again—at least not with San Francisco!

President Edmund W. Littlefield of S.F.C.C. shows citation to Jacqueline Paul, an official of the *San Francisco Weekend* exhibition.

National Photo Show

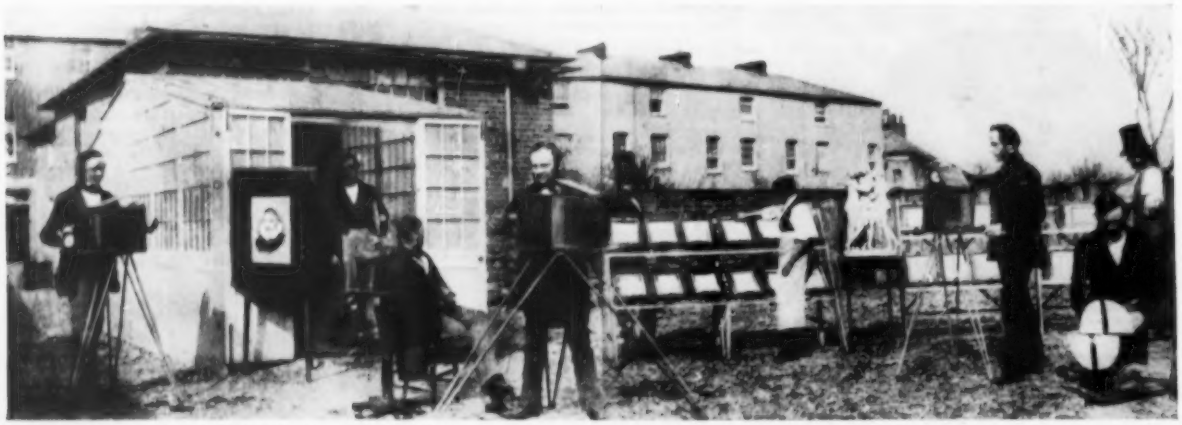
This year, the National Photo Show will be false to its name; the tenth annual exposition will have displays and demonstrations from all the camera-manufacturing nations of the world. That makes it, for the first time, truly inter-National. It will be one of three shows running concurrently, to open the brand-new New York Coliseum; the other two feature stamps and sports cars. More than a quarter of a million people are expected to cover the 100,000 square feet of exhibits, educational features, and entertainments. The show opens April 28, to run for nine days. If you live in the East, or can arrange to come, you'll find it an absorbing and rewarding experience. Of course, your favorite photo magazine will have a booth at the show; come in and visit us!

Red Cross Wants Old Pictures

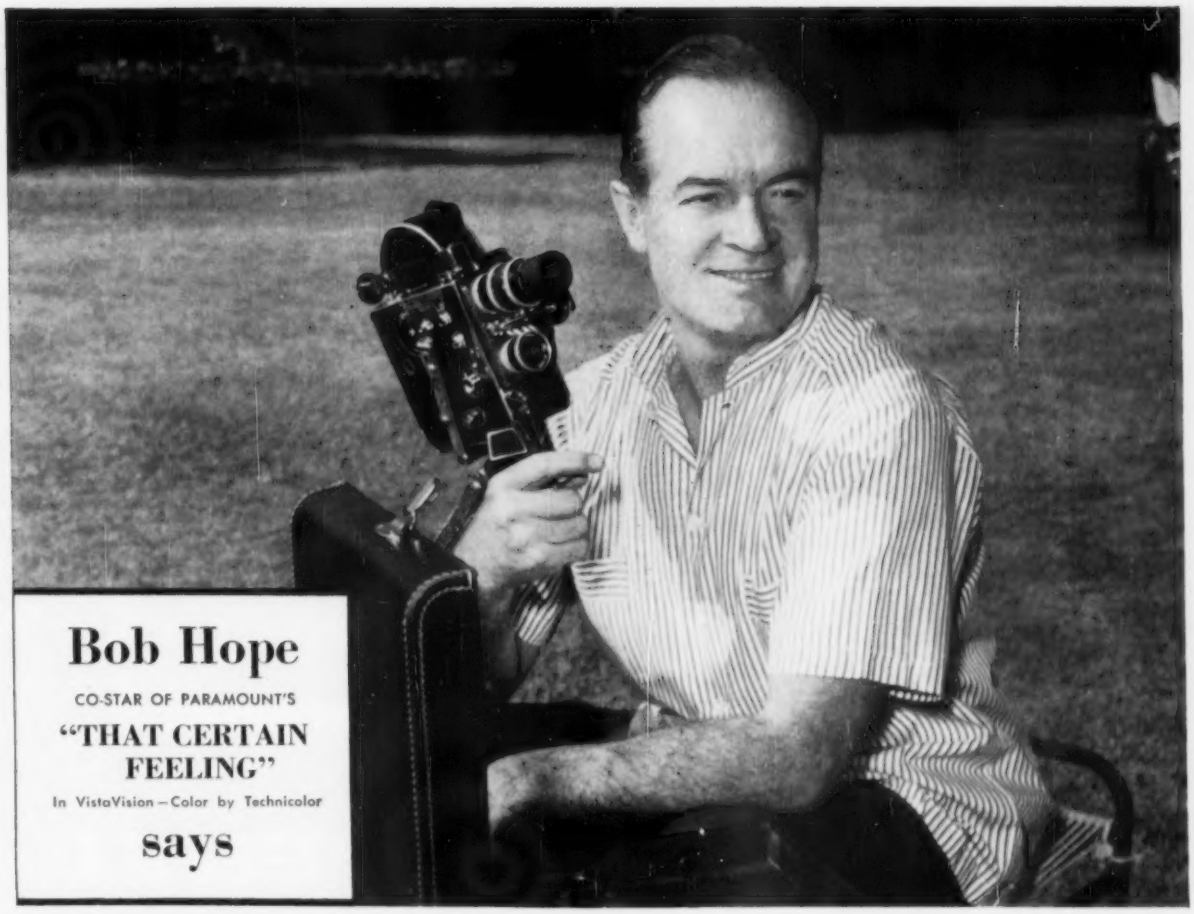
The American Red Cross, which celebrates its 75th anniversary this year, is conducting a nationwide search for photographs covering its own activities in the years before World War I. They are

(*Continued on page* 205)

FIRST PHOTOGRAPHIC PRINTING ESTABLISHMENT: 1845



William Henry Fox Talbot set up what might be called the world's first commercial studio at Reading, England, 111 years ago. Assistants are shown here making portraits and still-lifes, and printing by sunlight. Picture from Helmut Gernsheim's *History of Photography;* see page 90.



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On the farm, 1932

New tricycle, 1927

WHAT HAPPENED

The family buggy, 1929

Back porch, 1923

By DOROTHY FIELDS

My Best Doll, 1928

TO THE SNAP SHOT?

First birthday, 1923

WHAT has happened to the simple snapshot, the six-to-a-page kind that bulged the leather-covered photograph albums of a few decades ago? Today even the most amateur of amateur photographers reels under a pride-crushing blow if his pictures are referred to as snapshots or having a "snapshot-ish" quality. Nowadays, photographs must have a Message, artistic appeal, stark realism, feeling of movement, unique cropping, or an overabundance of flesh spilling out of a Bikini to qualify as worthy of a niche in this higher echelon of The New Art.

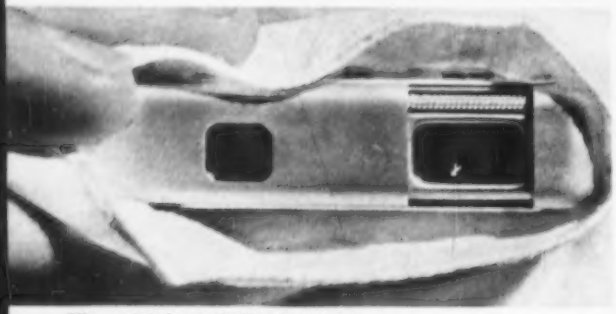
Since most male readers will probably snort and turn the page at the mention of "snapshot," this plea for its return is addressed to photographers' wives. How many of you have a pictorial record of your children featuring Junior on his tricycle, the baby in his carriage, or your daughter in a new dress? On the rare occasions when your husband does take such pictures of his children how many of them end up as negatives to be added to the dusty hodge-podge carelessly marked "miscellaneous"?

Sometimes he arranges light stands, floodlamps, miles of cord, tripods, and cameras, resulting in a production worthy of a Hollywood "spectacular."

The pictures, if they ever get beyond the negative state, are apt to show a scowling son who wanted to be outside playing, an unhappy daughter who was forcibly extracted from her unphotogenic rag doll, or a hungry baby screaming for his Pablum.

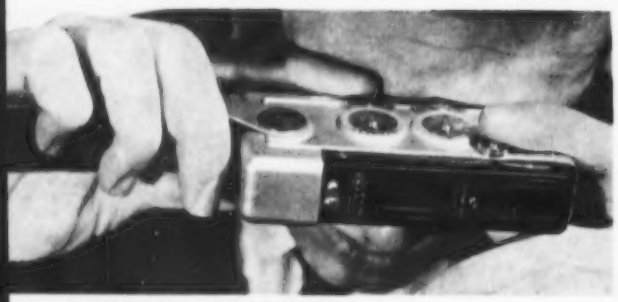
Let's step back a few paces and get a perspective on what has happened since the "good old days" when "snapshot" was a household word. It used to be the women who carried the cameras and took the pictures. In our mothers' day a gathering of the clan, the first day of school, or just a Sunday picnic was the occasion for mom to bring out the trusty folding Kodak or box Brownie, wipe the dust off the lens with a corner of her handkerchief (no fancy lens brush), check the little red film window (what happened to these?), back up the required ten or twelve feet (no range-finder problems), glance behind her to make sure the sun was over her shoulder, click the shutter, and record the scene for posterity. Being of a thrifty nature, she seldom exposed the entire roll of film at one time. It might have been two or three months before the exposed roll was left at the corner drug-store for finishing. Of an eight-exposure roll, she ex- (*Continued on page* 114)

SUB



Minox: 3.5 lens; shutter to 1/1000

Minicord has f/2 lens; shutter to 1/400



Galli: 1.9 lens, shutter to 1/1000

These three cameras are the most advanced models now available in the subminiature field. Although they can be adapted to a variety of photographic duties, they are unexcelled for work where the camera must be as inconspicuous as possible.

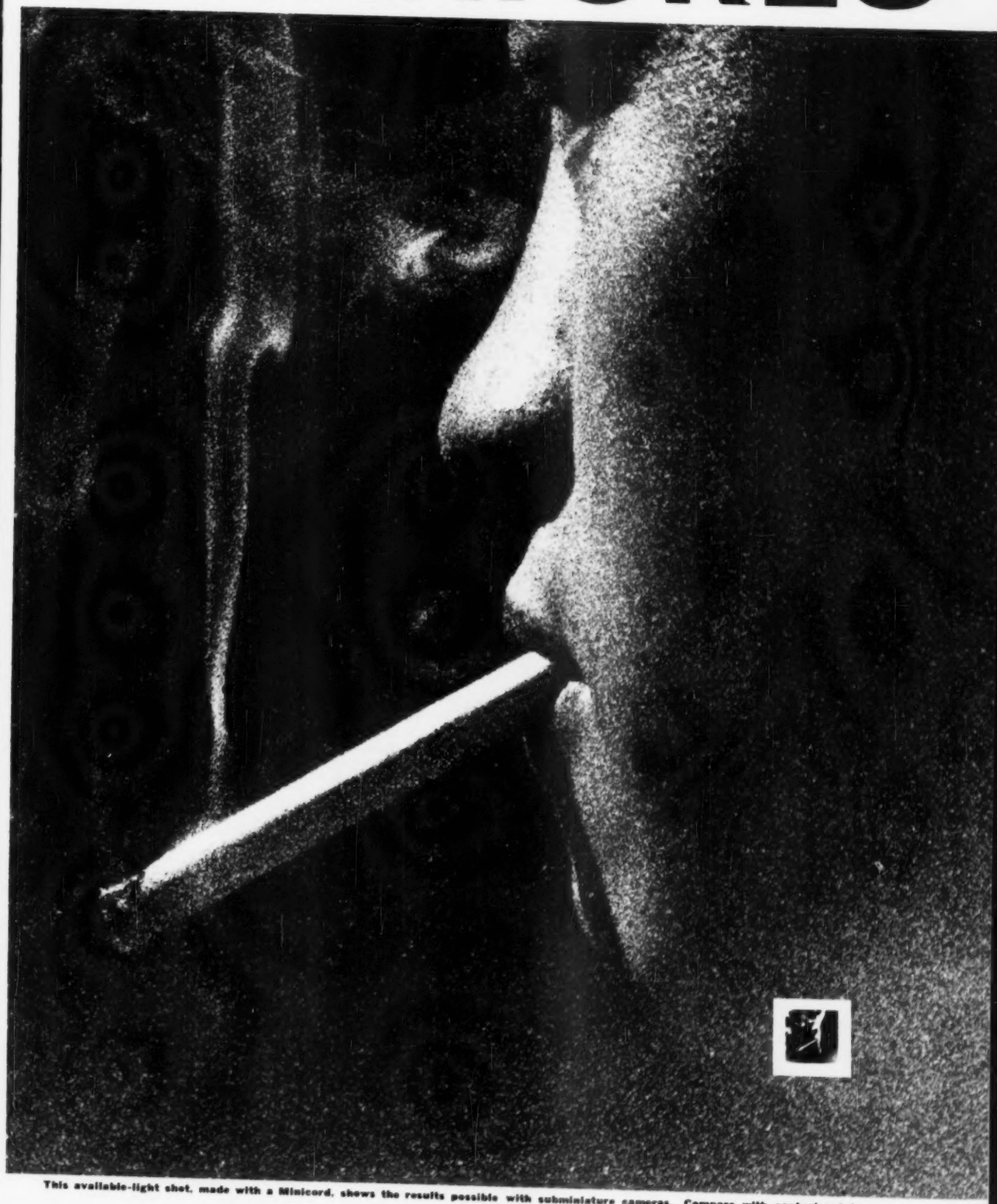
These tiny precision instruments can make pictures with unobtrusive efficiency when the situation requires a really *candid* candid camera

By ARTHUR KRAMER

SUBMINIATURE cameras using 16-mm film have been around for a long time but only recently have they left the novelty counters to make their bid for recognition as instruments capable of serious photography. Limited by crude design, uncertain film supply, and careless processing, these cameras were barely capable of producing a blurry, grainy 4x5 print. Now, however, with the introduction of new cameras built to highest precision standards, equipped with sharp, fast lenses and automatic operating controls, subminiature photography may be on the threshold of a boom similar to that experienced by 35-mm during the thirties. It still presents the most exacting challenge to photographers, but aided by specialized accessories and new films, it is possible to make good pictures with these unobtrusive little cameras.

The subminiature offers, in return for the exacting technical skills required to use it successfully, an unexcelled tool with which to gain that most fleeting of photographic objectives—immediacy. Light, fast, inconspicuous, it offers exciting possibilities for creating new visual experiences, capturing those sudden and intimate moments when a subject is completely revealed. It lends itself admirably not only to photojournalism, but to travel and investigative photography where the need is for a quick sketch rather than a full portrait. When the photographic requirement calls for rapid, unobtrusive work, the subminiature fills the bill with large film capacity, almost unlimited depth of field, and fully automatic operation.

MINIATURES



This available-light shot, made with a Minicord, shows the results possible with subminiature cameras. Compare with contact print.

THE SUBMINIATURE CAPTURES CELEBRITIES OFF-GUARD

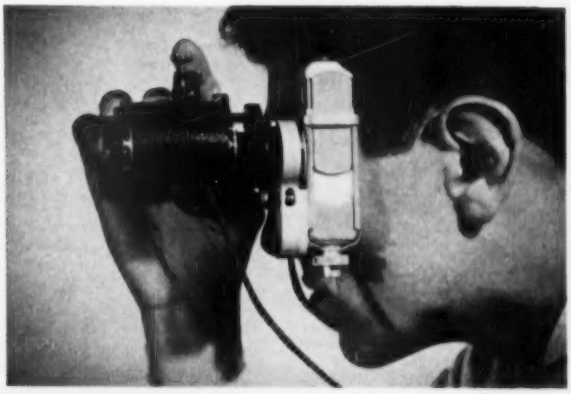
When photographer V. M. Hanks covered the U. S. Open Golf Tournament at San Francisco for the *Call-Bulletin*, he chose a Minox instead of the usual 4x5 press camera. This permitted him to make rapid series shots at 1/1000 second as well as sneaking a photographic scoop with candids of Bing Crosby and Kathy Grant, unknown to them.

Of the more than twenty models now on the market, three cameras are outstanding for their excellence of design, precision workmanship, and superior optics. They are the Minox, the first precision subminiature; the Minicord, a reflex type; and the GaMi, an Italian import. All three have proved dependable under hard use.

The Minox, a German product, originated in Latvia shortly before the war, earning for itself the nickname "spy camera" because of its adaptability to intelligence work. About the size of a pack of chewing gum, ⅝x1x3 inches, it takes 50 pictures 8x11 mm. The lens is a 15-mm *f*/3.5 with a focusing range from 8 inches. There is no diaphragm on the lens, exposures being varied by adjusting the shutter from ½ second to 1/1000 second. The camera features built-in flash and two filters, an orange and a green. Film is transported by a push-pull opening-closing motion of the camera body and is supplied in special cassettes with a film chamber and take-up spool so that rewinding is unnecessary. Loading takes about three seconds.

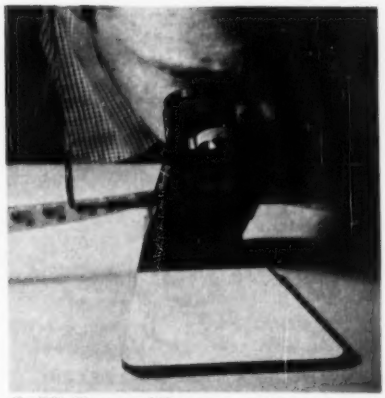
The Minicord is a more ambitious design, a twin-lens reflex with eye-level prism focusing and viewing. The taking lens, a 25-mm *f*/2 Goerz Helgor, is coupled to the viewing lens by geared mounts. Rotating the taking lens rotates the finder lens. The Minicord uses 16-mm film in reloadable cassettes holding enough for 40 exposures. The film transport is coupled to the shutter wind, the speed range (*Continued on page* 176)

SOME TYPICAL ACCESSORIES AVAILABLE FOR SUBMINIATURE CAMERAS

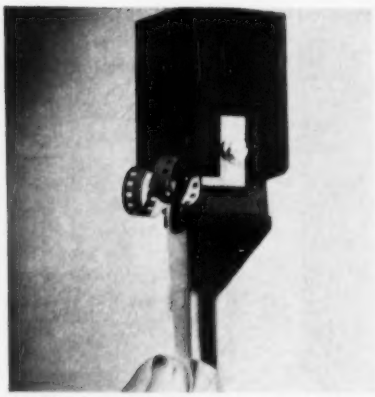


Telephoto-Binocular clamp for Minox permits camera use with binoculars for telephoto effects or on tripod for time exposures.

← **For close work** (18 inches) the Minox has a chain with distances from 8 to 18 inches marked off for exact focusing.



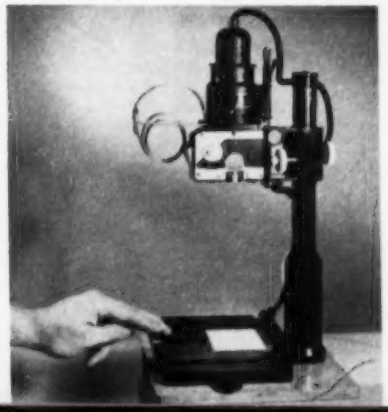
GaMi Frame Viewer can be used both for inspecting negatives, viewing color slides.



GaMi film cutter lets user cut 35-mm stock to get subminiature 16-mm size.

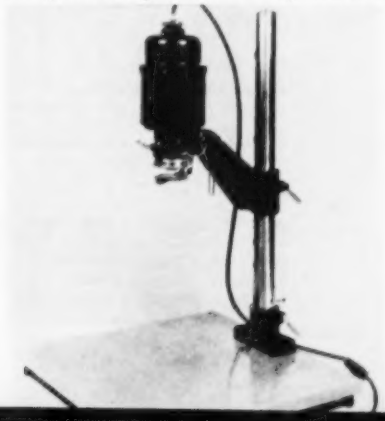
Developing tank for GaMi loads in daylight and uses only 4 ounces of solution.

Minilux attachment uses the Minicord camera for enlarging. The outfit rests on the hardwood box used as a carrying case. It is lowest-priced enlarger of the three.



Minox enlarger has f/3.5 lens, allows enlargements up to 11x14 inches on baseboard. It uses double condensers with a diffusing disk, has dustless film carrier.

GaMi has non-adjustable lens and unique focusing system. When numbers on column are matched to numbers on lens ring, enlarger is sharp at chosen magnification.



HOW MANY PICTURES MAKE A

Photographs By D. P. RODEWALD

MORE than one, says photographer D. P. Rodewald, who believes that no single picture can convey enough of the "ebb and flow of personality" to constitute a portrait.

The five photographs reproduced here were all taken of his wife over a period of a year and a half, and represent his concept of multiple or collective portraiture with each picture revealing a different mood or aspect of the subject's personality. The goal, he believes should be "the total portrait—a pictorial story of one human being." The method is to shoot a great variety of pictures over a period of time, then edit the results with discrimination.

One fault with the conventional, one-picture approach to portraiture is the time factor, he feels. "One picture cannot embody enough time. To try to crowd a personality or even a broad segment of it into 1/100 second is asking too much of the medium."

Rodewald supports his theory by noting that many of us have pictures made of ourselves from time to time in many situations because we change. "Viewed together they give us a rough, over-all portrait—a kind of narrative, but with too many gaps. There is no flow, no continuity," he explains. "We cannot read it as a series."

Isolated pictures are only half-statements to Rodewald, but he has found that it is possible to approach his ideal of a true photographic narrative of a personality. "It can be done by abstracting individual pictures from the many you have made of the subject and compiling them in a group of related pictures. This produces a sense of movement and begins to approximate life itself—the object we are trying to represent pictorially."

Rodewald has found that 35-mm photography by available light is the most natural means for achieving this ideal, although he sometimes uses bouncelight. The ease of shooting and the relatively low cost of 35-mm film make it possible to shoot many pictures without a prohibitive outlay of time and expense.

Rodewald works exclusively with an Exakta. He likes the single-lens-reflex type because it permits direct composition on the groundglass and shows him exactly what he gets as he changes to lenses of different focal length.

"Portraits become less painful—and more honest," he notes. "By employing natural light, the harshness of honesty is tempered with lyricism. A portrait needn't be a brutal document. It can be poetic."—▶

During preliminary exposures his wife looked up from her magazine, top. Rodewald uses a 35-mm Exakta VX camera in shooting portraits.

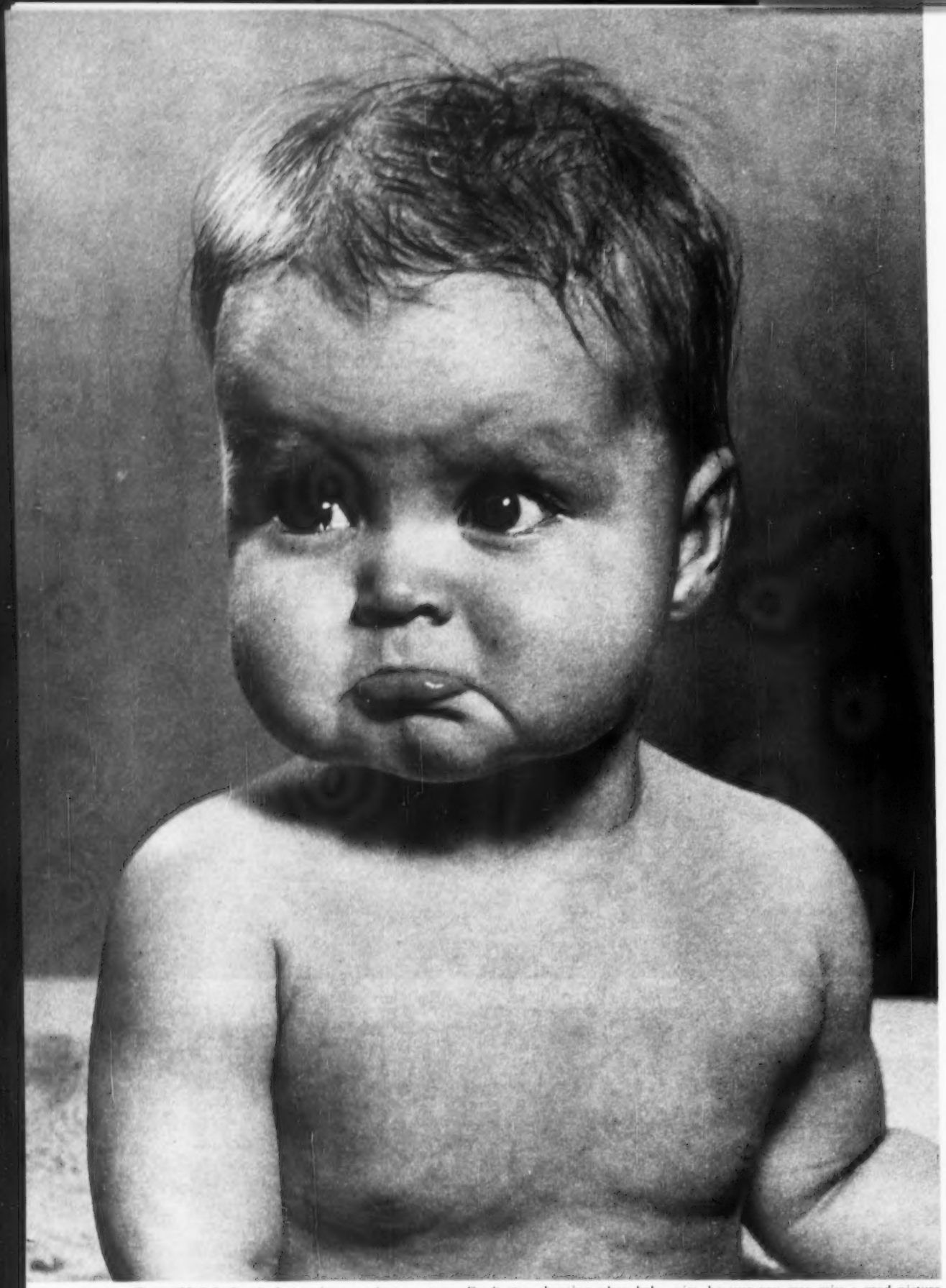
Rodewald's wife captured in a moment of reflection, above, as she glanced out the window. Rodewald prefers a 135-mm f/4 Triotar lens for close-ups.

Available-light portrait, right, was made at home during a conversation with a friend. For medium shots, Rodewald uses a 58-mm f/2 Biotar.

PORTRAIT?

Narrow, dimly lit hallway set the mood for this interesting facial study of Rodewald's wife. Limited space necessitated working close with Triotar.

Bounce flash was used here. To suggest the mood of a sculpture on which she was working, the subject applied a heavy plaster-like make-up.



Beautiful baby looks good even when pouting. Don't stop shooting when baby cries, because you may miss a good picture.

SCHNEIDER SHOWS HOW TO SHOOT WITH ONE LIGHT

Photographs by John Durniak

JOSEF SCHNEIDER TELLS

HOW TO PHOTOGRAPH CHILDREN

FOR PRIZE-WINNING PICTURES

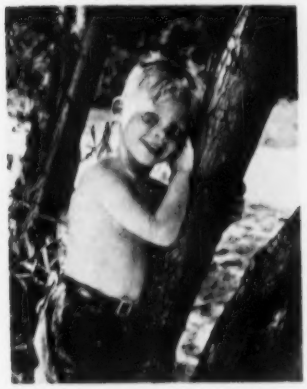
Read these tips and enter the *Better Living* magazine contest. Details on page 198

THE photographs shown on this spread are from the home-study course by the famous child photographer, Josef Schneider (published by The Academy of Practical Photography, Inc., Suite 1402, 119 West 57th Street, New York 19). Although he uses more expensive equipment than most amateurs own, the basic principles in his work can be used by every amateur.

On the following pages you can see Schneider at work with simple equipment. Study his technique. Then try it on your baby, or on the baby next door. If you've learned your lesson your pictures will be good. Try entering them in the $2,000 *Better Living's* baby contest. Who knows, you may have a winner and some fine prizes.

All photographs by Josef Schneider

By pulling toy away from child photographer got her to toss up her hands. He held toy above his camera and caught the peak of action.



Outdoors, Schneider coaxed model into shaded area and then waited for a natural pose. Note how this lighting softens harsh shadows.

Instead of shooting straight on, Schneider had girl face toward side. This pose revealed most flattering angle. Note the catchlights in eyes.

Subdued expression like this one is sometimes better than a full-face grin. Black background places emphasis on face, blond hair.

Simple prop, like glasses, can be used in picture. Prop must be small and easy for child to handle. Big objects detract from child.

TURN PAGE AND SEE HOW EASY IT IS TO PHOTOGRAPH CHILDREN

SCHNEIDER SHOWS HOW TO SHOOT WITH ONE LIGHT

Photographs by John Durniak

Toys and gimmicks should be ready for use before child arrives on scene. New toys which child sees for first time are best.

Place camera on tripod. This frees photographer's hands for playing with baby. Try to keep baby in area of sharp focus.

If wallpaper in room has distracting pattern, put up a plain background. A solid-colored blanket taped onto wall works well.

Set up lights carefully before shooting. Here Schneider placed light high to right, so no background shadow appears.

Warm-up period before shooting gets child in happy mood and is the key to successful pictures. Arouse interest with a simple toy.

Don't force child. If she insists on another toy, get it. Keep her in a good mood. If mood is broken, postpone session.

By JOSEF SCHNEIDER

"TWO things you must learn to make successful child portraits—good, full, round, flexible lighting and effective methods for managing the child."

This is the first sentence that I use in my home-study course on child photography. The good pictures I have taken I owe to having learned both these fundamentals well. These fundamentals can work for *you*. The best thing I can do in this story is to give you direct practical advice about them. I will try to put myself in your place as far as shooting facilities and equipment are concerned.

Let's start with the most important points and work down. First, we'll take the camera and lighting setup.

1—*Have everything set up before the baby arrives on the scene.* Have your camera loaded, lights in the exact position that you want them, and have ready for use all the toys and cookies you think you will need. The less time you allow the baby the less chance of the child becoming bored or frightened by the equipment.

Your lighting setup will depend on what kind of equipment you have. Some will have electronic flash, others just one or two floodlamps. It is hard for me to generalize on a lighting setup. To demonstrate the way I would work under a living-room situation I used one floodlamp for the accompanying demonstration pictures. I placed this light so it would not give me any distracting shadows—high and to the right of the camera. When using several lights, be careful that you do not produce unpleasant, confusing shadows. I recommend to my students that they set up a doll in their lighting situation and carefully check the shadows that fall upon it.

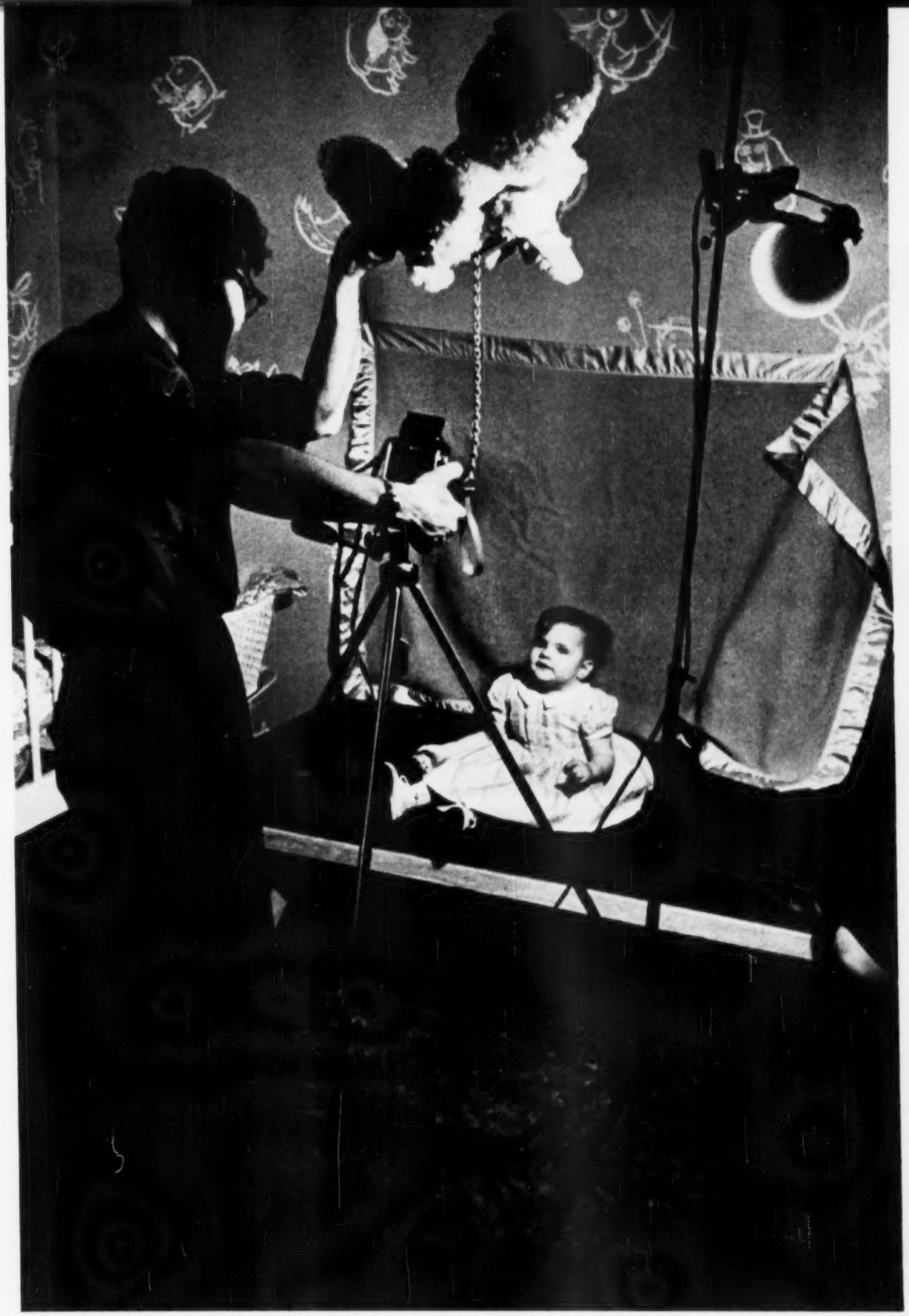
2—*Put your camera on a tripod.* With the camera on a steady support and focused on your subject you can devote more of your energy to entertaining the child and getting the "exact moment."

3—*Make sure your background "fits" your picture.* If the wallpaper in your living room has a distracting pattern, get a plain blanket or extra-large towel and Scotch-tape it to the wall for a neutral background. The child is the most important thing in your picture. Make sure nothing attracts attention from him.

4—*Choose the "right" angle.* Your baby's face will decide the best camera angle. If he has a large chin, you can de-emphasize it by choosing a high angle and shooting down. On the other hand, if the baby has a large forehead, choose a low angle and shoot up at his face. Babies with large ears look better if photographed slightly from the side rather than straight on.

Move your camera around to different angles and study the effect before shooting.

5—*Get in close.* A picture in which a baby's face (*Continued on page 206*)



After waving stuffed dog above baby's head, Schneider holds it up high. As she watches dog, he shoots the picture.

PICTURES WITHIN

This is the full 35-mm frame . . .

Imaginative cropping sometimes can reveal a variety of pictures contained inside one negative area. Take a second look at your own photos and try this experiment

Photographs by BOB SCHWALBERG

here it's cropped long and narrow . . .

A PICTURE

A LARGE part of becoming a photographer is in learning to see—not only that portion of reality you choose to record on film but also the resulting picture itself. This latter kind of seeing, a rigorous analysis of the entire negative area, shouldn't be dismissed as mere second-guessing. It, too, offers endless possibilities for fun and creative achievement. Although you can't put something into a picture that wasn't there at the instant of exposure you often can find "pictures within the picture" which can be brought out by cropping.

The seven pictures reproduced here are a graphic demonstration of how different pictures sometimes can be discovered within a single frame. Both the photograph and the various croppings are the work of Contributing Editor Bob Schwalberg, who shot the picture some time ago as part of a series of experiments with blurred action. This particular shot was made in the fading light of an autumn afternoon, and required an exposure of 1/25 second at f/2.8 on Plus-X film. It was only later, while rummaging through boxes of old prints, that Schwalberg realized the hidden worth in this picture. He took it into his darkroom and experimented to see just how many different pictures he could find by drastically cropping the negative (and also flopping it when he felt this served his purpose). The results, ranging from the full frame plus sprocket holes to a huge blow-up of one tiny segment, create an interesting visual flow when viewed in sequence. The effect is similar to what a movie-viewer experiences as the motion-picture camera begins with a long shot, then zooms into a scene and pans across it, selecting significant details.

This free and easy use of cropping may seem shocking to those purists who insist on composing fully to the negative's edges at the moment of exposure. Obviously, perfect cropping and composition at the time the shutter trips is an ideal goal which many strive for but few ever realize. The precise eye of a Weston or a Cartier-Bresson is a gift of genius. For the rest of us, cropping provides a way to sharpen the visual impact of our pictures, and sometimes to salvage failures. Of course, not every photograph contains such a variety of inner pictures as this one by Schwalberg. But you'll find it fascinating and a valuable exercise to go over some of your old negatives with a fresh eye. Pick out some promising candidates and take them into the darkroom. Start with a full-frame print, then gradually crop in to the central point of interest and notice the effect. Try extreme horizontal cropping and extreme vertical cropping. Finally, raise your enlarger high to give a big image and range over the picture area, selecting interesting details. This kind of practice will not only improve your darkroom skill but also sharpen your eye at the moment of picture-taking.—*Arthur Goldsmith*

and here the negative is flopped.

Pictures continued

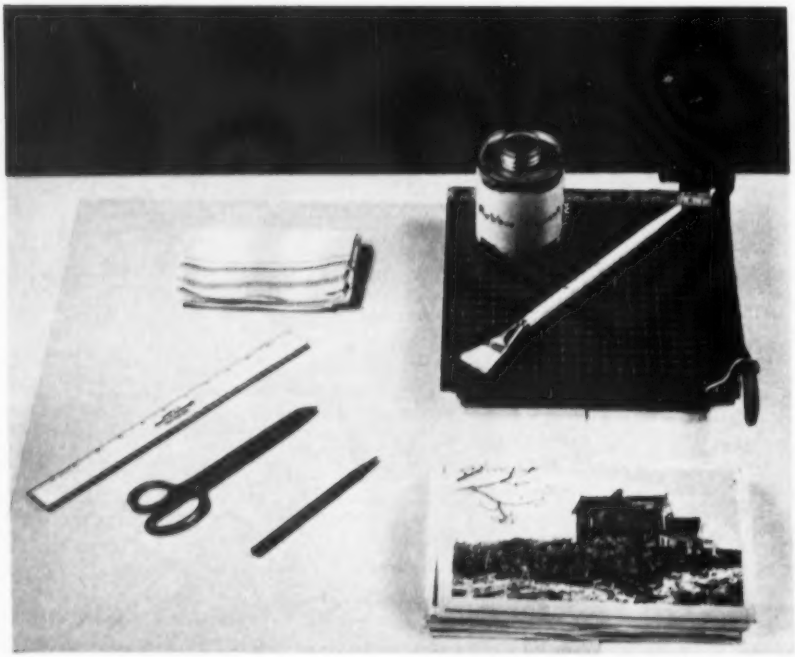
Now the lone figure is cropped out, attention is focused on group of four hand-ball players . . .

two boys at left make a picture in themselves . . .

and so do the two boys at right (negative was flopped here).

Finally, we zoom in for an extreme close-up of blurred legs.

HOW TO SHOW



supplies you'll need for flush-mounting your prints

Mounting supplies (at left) are: dish-towel (for smoothing cement-coated prints down on board), ruler, scissors, pencil, rubber cement and brush, cutter, and illustration board (available in 30x40-in. size at most artist supply stores where they will cut it for you into two sections, one 20x24-in. to give you 12 8x10 boards, the remainder to be used for mounting smaller prints and as mailing stiffeners). Prints need not have large borders since they will be trimmed off after they have been mounted.

OF course you're proud of your own pictures. We all are. But how many of us show our prints around to family and friends right after they're made and then stack them away with good but vague intentions of mounting them, putting them in an album, or hanging them some nebulous day in the future? Maybe you're just a victim of inertia or maybe you don't have any precise, step-by-step procedures at your finger-tips, which always makes tackling an unfamiliar job so much more inviting. In any case, putting the end product of your photographic efforts on view is every bit as important as the earlier steps in the picture-making process. Not only does a good-looking showcase of your pictures function as interior decoration, but it serves as a constantly inspiring reminder of your accomplishments, both to you and any skeptical friends or family members.

In the first place, merely flush-mounting your prints (backing them with stiff cardboard or art-illustration board and trimming away the margins) has advantages. They are more easily stored and have a greater life expectancy than unmounted prints. They can thus be kept perfectly flat, eliminating wrinkles which cause reflections when prints are viewed.

To go back a step before the activity in our how-to discussion begins, I recommend that you use a single-weight glossy printing paper, dried without ferrotyping, to eliminate high gloss. This can be done by drying the print *face up* or between blotters. The result will be a print surface having a soft, pleasing lustre.

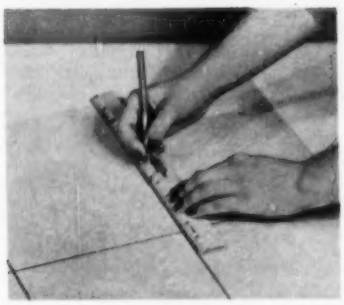
Supplies you'll need for mounting are illustrated here and are all available at most artist supply stores. I use illustration board for my print backing; it comes in several sizes, but I buy the 30x40-inch size and have a 20x24-inch section cut from it which gives me 12 8x10 boards. The remainder can be used for mounting small prints and as mailing stiffeners.

Coat both print back and mounting board thoroughly and evenly with rubber cement and let dry (this will be when the cement has lost its gloss and

By ARTHUR H. BLEICH

OFF YOUR PRINTS

how to cut board and flush-mount prints



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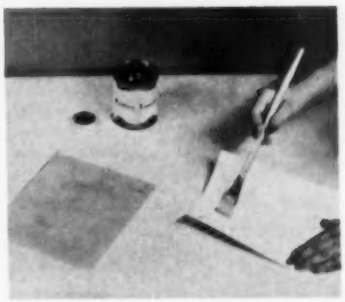

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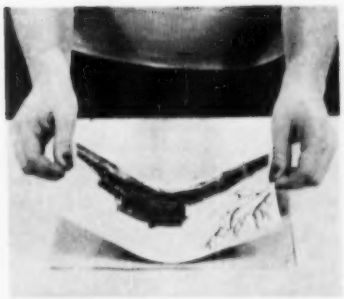
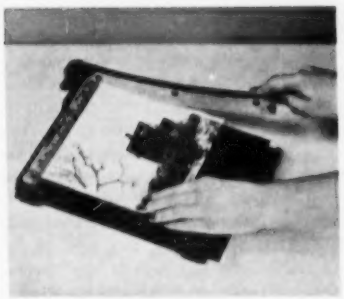


3

1 Rule 20x24-in. section of illustration board into six equal parts, 8x10 each, and cut apart with scissors. **2** Coat back of print and board thoroughly with rubber cement; wait a moment until cement has dried (when it has lost its gloss). **3** Grasp print by edges and bring *slowly* into contact with board to prevent formation of air pockets. **4** Smooth print down with dish-towel, working from center outward. **5** Trim print along borders, using firm cutter strokes.

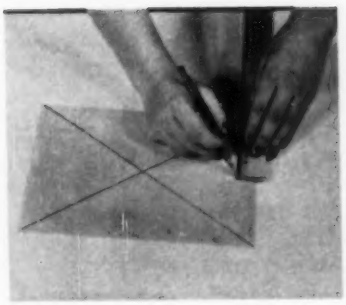
4



5

hanging method no. 1: gummed cloth hanger

1 To get exact center of board, draw diagonals on back of mounted print and measure the distance from this point (where diagonals intersect) to print edge. Mark it near top of print as second guide mark. **2** Now draw line on which to affix cloth hanger. **3** To hang print, catch hanger eyelet onto thumb tack or small nail already in place in wall.



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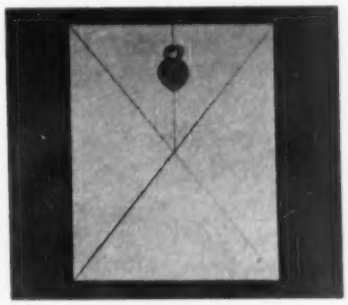
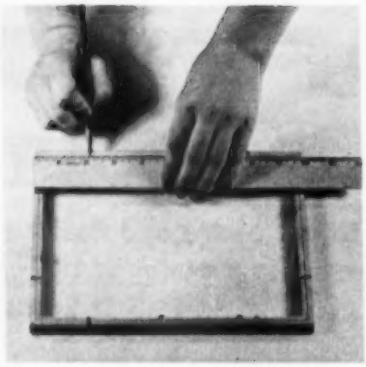


2

3

hanging method no. 2: picture-frame corners and rubber bands

Small, inexpensive picture frame, available for about 35 cents in most dime stores, rubber bands, and tacks are all you need for this easily assembled hanging device. Get a very small frame because all you'll be using will be the corners. **1** Measure two inches from each corner and saw off there. **2** Nail two tacks into back of each frame corner. **3** Wind rubber bands around tacks as shown, and slip corners over print edges. Be sure rubber bands are long enough so that there is not too much tension; otherwise print will bend. **4** Here is unique, interesting result.



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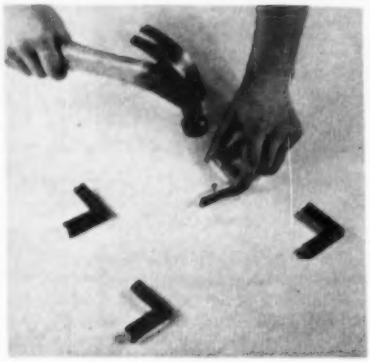

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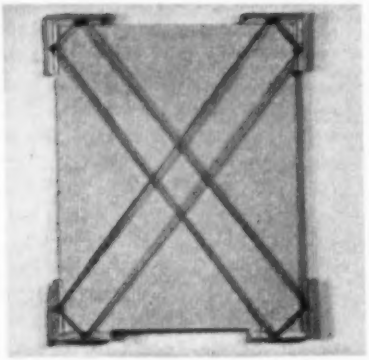


3

4

it takes barely a minute). Hold print by edges and bring slowly into contact with cardboard so as not to form air pockets. Smooth print down with a dish towel, working from the center outward. Be sure that the edges, too, are in firm contact with the board.

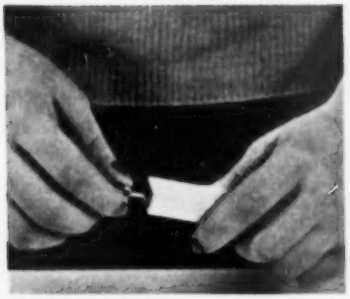
Another mounting method requires a dry-mounting press and special dry-mounting tissue. The tissue is first tacked onto the back of the print with a tiny tacking iron. Carefully trim off any hanging edges evenly with a razor blade and straightedge. Laying a sheet of protective paper over the front of the print, tack it gently to the cardboard backing. Lay print in preheated dry-mounting press and close, following manufacturer's instructions exactly as to how long print should be pressed. Print borders can be trimmed off in a cutter, providing the blade is in good condition, using firm, even strokes, or with a razor blade or sharp knife and straightedge. The important thing is to end up with smooth, straight print edges.

You know how to mount your prints; now here are four methods to choose from for displaying the results:

The first and probably simplest method is to affix a gummed cloth hanger to the back of the print and tack it to the wall through the eyelet in the hanger. One popular type of hanger, sold as "No. 21 Gummed Cloth (*Continued on page* 172)

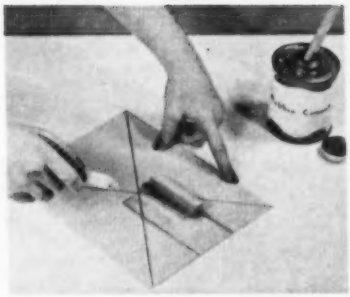
hanging method no. 3: wood blocks, screw-eyes, and wire

1



2

1 Cut two 3-in.-long blocks of wood from a ½x¾-in. strip. **2** Insert small screw-eyes into one end of each block. Again draw diagonals on back of print and a 2-in. line through the point of intersection, extended upward at each end at right angles to mark placement of two blocks. **3** Rubber cement blocks into position on these lines. **4** Connect screw-eyes with string or piano wire for hanging. **5** Displayed print stands away from wall, creating dramatic, dimensional effect.



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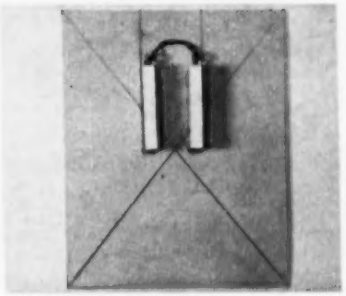

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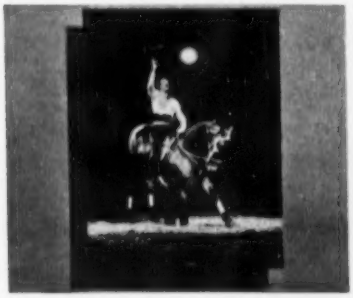
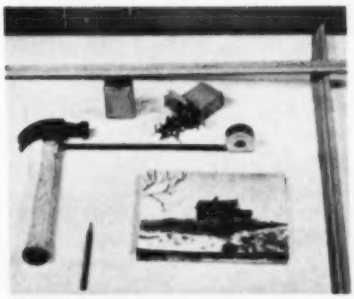


hanging method no. 4: wood moulding strips

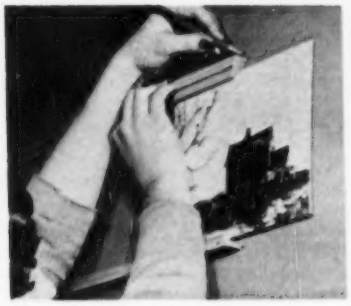


1

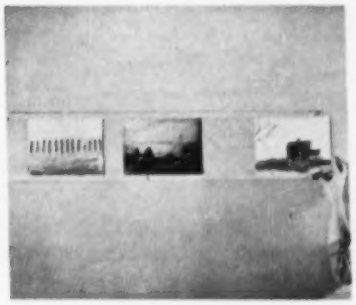
2

1 Materials necessary for "picture-gallery" display which lets you vary exhibit and change it easily. Screws may be used instead of nails if display is to be on wood background. **2** Measure down from ceiling and mark two points on which to exactly align bottom moulding strip. **3** Hammer moulding onto wall at pencil points. Piece of tape on wall will keep plaster from cracking. **4** Place mounted print within top and bottom moulding for guide. Make a mark at each end of top moulding for exact alignment and hammer it onto wall. **5** Finished product in use. Prints can easily be slipped in and out of moulding grooves; are held securely in place. You will, of course, have to keep prints of equal height for use in this display.

3



4



IS THIS CREATIVE PHOTOGRAPHY?

Yes, says California pro LYNN FAYMAN, who makes color abstractions with simple objects and careful control of light quality

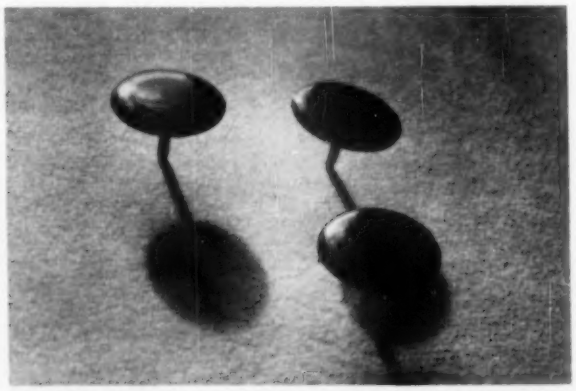
WHEN the camera begins to do more than record subject matter purely and simply as it appears to the eye, when the photographer's mind and personality leave their imprint on the picture, we often call the result "creative photography." Two kinds of people take exception to this use of the word "creative." One group feels that pure record-making is the only job of the camera, and any attempt to influence the subject matter may be dishonest. The other group, on the contrary, would limit the definition of creative photography to pure abstraction, in which the real subject is an idea or an impression, rather than a thing. It is to this latter group that Lynn Fayman belongs.

Fayman, a successful professional photographer who lives and works in La Jolla, Calif., finds his truest satisfaction with the camera in "creating pictures, rather than *taking* pictures." By the control of color and light, and the arrangement of otherwise meaningless objects, he puts on film what he calls "visual experiences, or pictures, that are totally new in concept and that have never existed before."

Some people who see Fayman's work here for the first time will think it is as meaningless as the scraps of metal, plastic, and paper that are its fundamental "subject matter." Probably more—including those whose visual experience and background include modern art—will find it fascinating and satisfying. There are elements in it of non-objective painting; there is free and imaginative use of color for its own sake, the transformation of commonplace objects into unrecogniz- (*Continued on page* 202)

"Backstage" in the setup for the abstract color shot on facing page: objects that make up the shadow-composition are arranged behind the translucent screen. Note shaving mirror, stand magnifier, cardboard cylinder, prism, screen, gelatins, cutouts.

"Onstage" view of setup for various thumb-tack abstractions, including the two on opposite page. These were photographed directly, rather than as shadow images. Same mirror and prism are used.

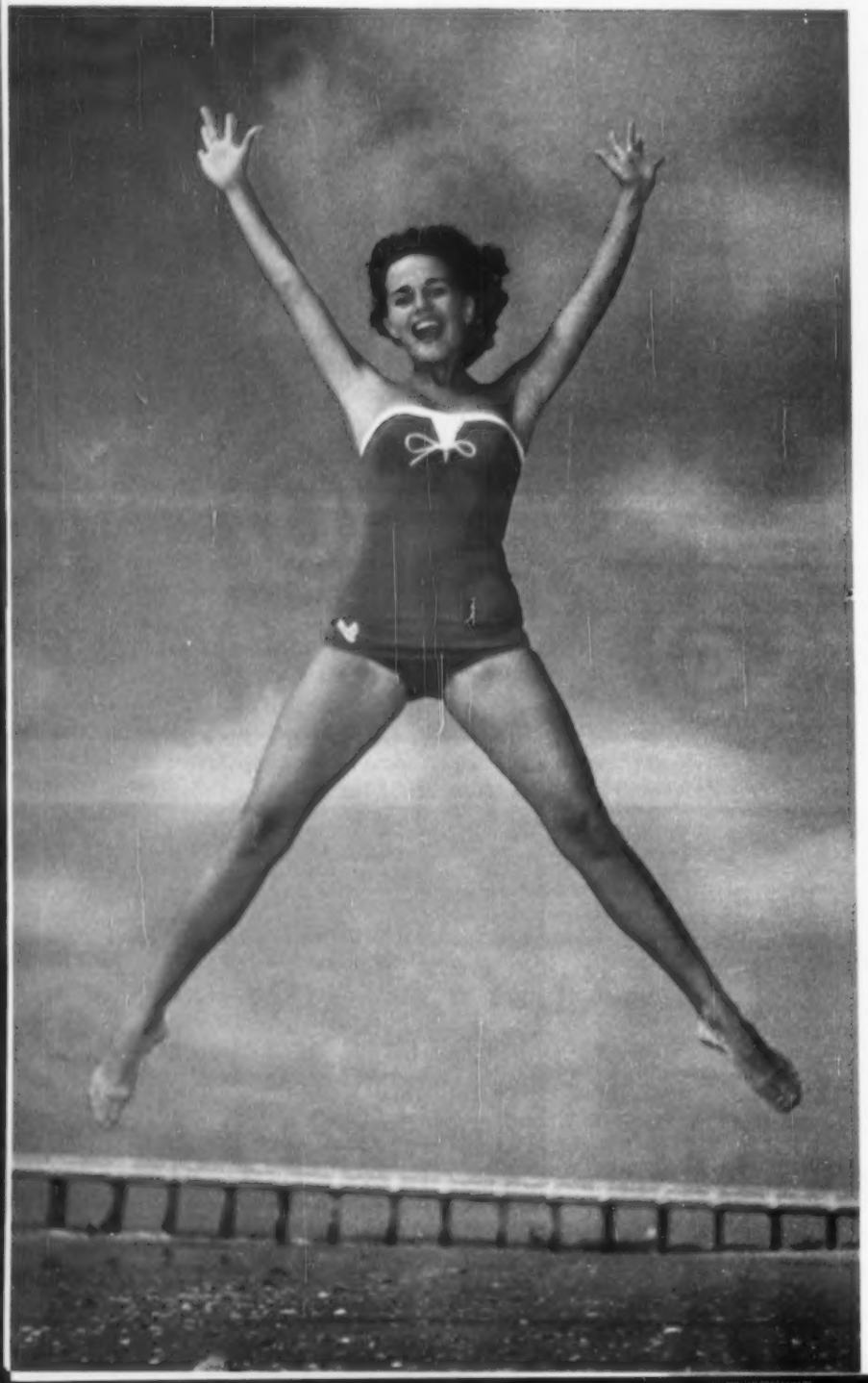


Straight shot of pure subject matter for the color abstractions: three ordinary thumbtacks, backlighted, photographed in black-and-white to show how insignificant subject can make creative pictures.

Nonobjective photograph is a composition created from wire mesh, cardboard shapes, and various devices for altering the color and quality of light. The objects used for this picture are shown on facing page, and at right is a setup showing how they were arranged on a pedestal and lighted by five spots to cast reflections on a "process screen" such as is used for projected motion-picture backgrounds. The camera, a single-lens reflex, was set up on opposite side of screen, and photographed only the reflections. This is typical of what Fayman calls "creative color photography."

Two abstractions made with thumbtack setup are shown here. First, a weird "landscape" with a "moon" created by casting a ray of light from a concave mirror onto the background. And, at right, a simplified version of the composition, with more emphasis on the tacks. The background was made of torn paper, and colored gelatins were used in front of spots and floods for color effects.

PICTURES FROM



Robert A. Preston photographed pretty Connie Williams on a Florida beach with a Rolleiflex and Ektachrome E-1 Daylight Type film, plus a Skylight filter to reduce excessive blueness from the sky. A Heiland Strobonar V speedlight was used for fill-in, and exposure was 1/250 second, *f*/3.5. Connie made a few practice jumps, and Preston caught her here at the action peak. Bright beach light permitted extra-fast shooting.

Al Taylor, an American free lance living in Paris, was struck by the subtle coloring of these house-fronts in a coal-mining village in northern France, and made this shot of them with a Leica IIIf on Kodachrome Daylight Type film, using exposure of 1/100 second at *f*/4.5. He waited until sunlight broke through a morning overcast, then climbed to the roof of his jeep for a viewpoint that avoided the distortion of shooting upward.

Grace Maddock Miller got a vital and spontaneous snapshot of her granddaughter, Susan Gillis, on a beach near her home. Mrs. Miller's camera was an Ikoflex; her film Ektachrome E-1 Daylight Type. A No. 5 flashbulb supplemented sunlight, acting as fill-in, and exposure was 1/100 second at *f*/8. She took a low angle to get the sky as background. Mrs. Miller, an enthusiastic amateur, has published several other pictures.

William Jacobson, as a tourist in the Capitoline Museum in Rome, found a kind of surrealistic quality in this foot of a giant statue. He got this picture of it with a Retina IIb and Kodachrome Daylight Type film, with exposure of 1/50 second at *f*/4.5. Jacobson is an artist by profession, and this museum, on the site of an ancient temple dedicated to the worship of Jupiter, provided him a fascinating hunting ground.

Douglas Brand found his "model," a garden snail, in his back yard, and photographed it with an Exakta and normal 50-mm lens on Daylight Type Kodachrome, with exposure of 1/50 second, *f*/8. Great care and patience were needed to get the shy creature to "pose" on the specially moistened leaf; it kept sliding out of the viewfinder. Brand says he could get no model release, for "somebody stepped on the model."

Robert A. Preston, St. Petersburg, Fla.

OUR READERS

Al Taylor, Paris, France

Grace Maddock Miller, Inverness, Calif.

William Jacobson, New York City

Douglas Brand, Montrose, Calif.

Ready to shoot: Venti and aides load view cameras.

TONY VENTI shoots a

SPECTACULAR

DID you see this inviting color photograph of a shipboard party in a recent magazine advertisement for American Export Lines? Since you're a photographer yourself, you probably wondered how it was made. Was it a real party, perhaps in mid-Atlantic? Was this just a lucky shot, or was it carefully planned? Was it made with a small or large camera?

Now that you've seen this page, with three pictures of the setup and the clean-up, you know the answers to most of the questions. It was indeed a carefully planned color-shot, made with a large camera. And it was a real party, aboard the S. S. *Constitution*, with 250 real guests—not in mid-ocean but at the ship's berth in New York harbor. The photograph was made by top-flight commercial cameraman Tony Venti and his crew of 25 specialized assistants.

American Export Lines' advertising agency, Cunningham and Walsh, made arrangements for the elaborately staged picture. The agency's memos, covering weeks of preparation and planning, read like a field general's dispatches for a major military operation. Reeve Limeburner, the art director who masterminded the undertaking, explains, "In ship advertising, it is always a problem to make the presentation outstanding and different. To heighten the feeling of glamour, we decided on a night ship party, with bright lights, the pool filled and people swimming, more people dancing to an orchestra, confetti, and all the trimmings.

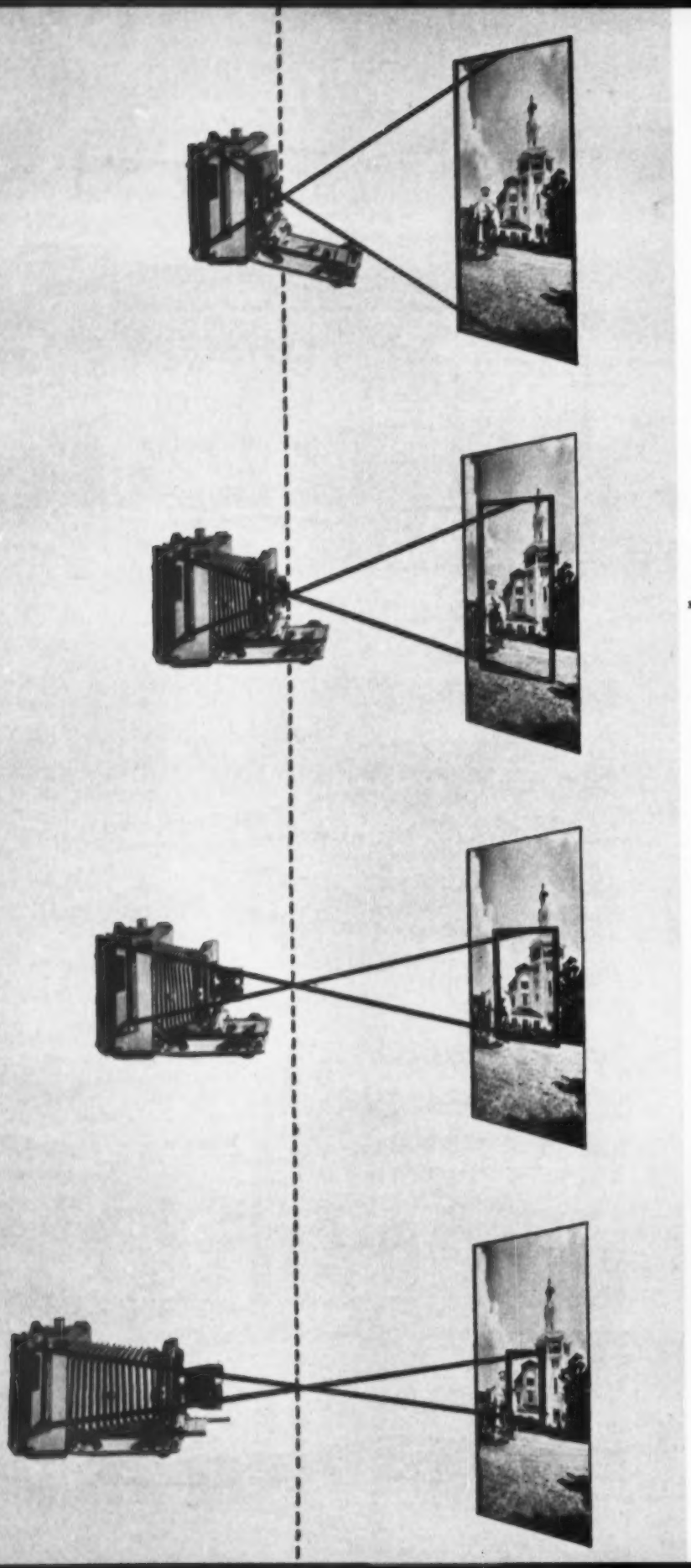
"Next came the problems of casting so large a show. To use so many professional models would have made the cost prohibitive. So the ship company decided to have a cocktail party, dance, and buffet sup- (*Continued on page* 113)

Before and after: At dusk, Venti and crew had finished setting up lights and cameras, and checking all equipment. Party guests had begun to arrive. Below, tired Venti sits atop heap of cable, with foot on a giant spot, as he waits for equipment to be taken from ship after strenuous shooting session.

By JOSEPH FOLDES

HOW

The focal length of your



1 ←

Four lenses at work. Dotted line shows optical center of lenses. Top two are a wide-angle and a normal. Bottom two are telephoto lenses whose optical centers are in front of camera. Note how area covered and angle of view decrease as focal length increases.

Focal length of your lens

2

90-mm lens produces a wide-angle effect on a 4x5 negative by including a larger area than normal 150-mm lens on slightly smaller scale. Viewing angle is about 60 degrees.

YOUR LENS WORKS

lens and the position of your camera combine to determine the picture you get

MOST photographers are so concerned with lens speed and sharpness that they seldom take time to consider just what lenses do, how they form the picture and how focal length and camera position affect the image.

One basic property of any lens is its focal length. Technically speaking, this is the distance between the optical center of the lens and the plane where light rays are brought into focus with the lens set at infinity. In actual practice, it is the distance between the lens, focused at infinity, and the film plane.

The major effect of change in focal length is to change the size of the image, as in figures 1 to 5. All pictures were made from the same camera position but lenses varied from 90-mm to 360-mm focal length.

A short-focal-length lens designed for normal use, forming a smaller image, can be used with a small camera because the image can be recorded on a small piece of film. A longer-focal-length lens must be used on a larger camera to form an image which would fill a larger-size negative. If a 135-mm lens (normal for 4x5) is used with a 35-mm camera, it produces a large image but only a portion of that image is recorded on a 1x1½-inch section, resulting in a telephoto effect.

The terms "long-focus" and "telephoto" are commonly used to mean the same thing but while the effect of these two lens types is the same, they are two different lenses optically. A long-focus lens is a normal lens of longer-than-normal focal length, mounted on an extension mount for use on a camera smaller than usual for that focal length. Examples are "telephoto" 85- to 135-mm lenses used with 35-mm cameras.

A telephoto lens is a lens whose optical center is in front of the camera so that the extension needed to mount this type of lens is less than the focal length would indicate. Thus, a 200-mm "long-focus" lens would require an 8-inch distance from lens to film. A 200-mm "tele" lens would require only about 6 inches between lens and film. The image size would be the same in both cases

determines image size on negative

3

150-mm lens is "normal" for 4x5 size as focal length just about equals diagonal of negative, 6¾ inches. Normal lenses are designed to cover angles of 45-55 degrees.

4

240-mm lens gives about 1½ times image magnification when compared with normal 150-mm lens. This is a true "telephoto" with optical center in front of camera.

360-mm telephoto more than doubles image size. Relative magnification can be found by comparing focal length of any lens with that of a "normal" lens for that size.

PERSPECTIVE

It is influenced by camera position

6

Camera positions, marked by letters "X" and "Y," were used to take pictures at right. Compare photographs to see how camera position influences perspective.

7

"X" position. This picture was made with 90-mm lens and camera in position "X" (left).

8

"Y" position. This picture was taken with the same 90-mm lens, but camera was at "Y" (left).

9

Using a 360-mm lens on the camera at "Y" as above produced this shot. Only size changed.

since the effective focal lengths are equal.

Camera position has an important influence on the picture. The immediate effect of a change in camera-to-subject distance is to change the size of the principal subject relative to other subjects in the picture. Moving the camera closer increases this effect; moving it away decreases this effect. This change is not the same as that produced by a change in lenses.

In the latter case, the picture changes. The sizes of all objects change while they maintain the same relationship they had. In other words, if there are two images, one 2 inches high and the other 4 inches high, doubling the focal length will increase the size of these images to 4 inches and 8 inches respectively, maintaining the 1:2 relationship. This is shown in figures 10 to 12.

In practical work, the effects of a change in focal length and camera position are combined for more accurate control of the photographic image. Figures 13 and 14 show how both factors were used to get the effect the photographer wanted.

Let us see how these two properties work for the photographer in practice. A short focal length allows the photographer to cover more area on his negative because the image is smaller, thus giving a wide-angle effect.

A long focal length can give a tele-

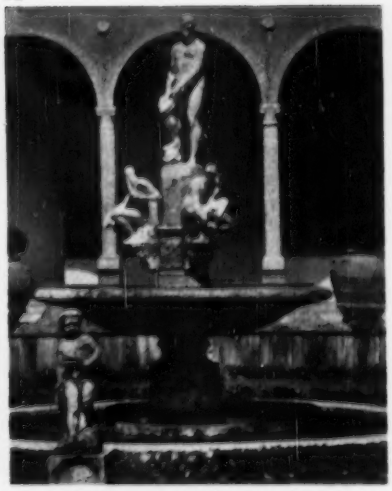
10 **Combined effects** of changes in focal length and camera position on the image are shown by this diagram. Camera lens was changed to keep size of foreground statue constant, but relative size of the fountain and building changes with distance to subject. Area covered by 90-mm lens is shown with dotted lines; 360-mm lens by solid lines.

This is effect of subject distance and focal length

11

Exaggerated perspective with 90-mm wide-angle lens at close shooting distances gives impression of wide and spacious area.

12



Flattened perspective is the result of using a 360-mm telephoto lens and shooting from increased lens-to-subject distances.

Space can be compressed or expanded

13

With 150-mm lens and camera close to first column, the exaggerated perspective makes corridor seem long.

14

Using 360-mm lens and moving the camera back flattens perspective and makes corridor appear shorter.

Close camera position exaggerates perspective

15

Dramatic "distortion" was created by using a 90-mm wide-angle lens and shooting close to the subject to exaggerate perspective. Picture on left was made with 360-mm telephoto used at greater lens-to-subject distance.

photo effect, enabling the photographer to "pick off" details from a distance. See figures 17 to 20 for an example of the telephoto lens in action.

One of the most useful results of varying focal length and camera position is its effect on perspective, the illusion of a third dimension. This effect can be varied by changing camera position and using the proper focal length to control image size.

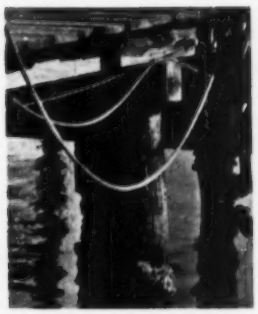
Using a short-focal-length lens and placing the camera close to the subject will accentuate differences in size and position so that the "normal" relationship becomes "distorted" as in figure 15. The baseball bat occupies a large amount of negative space but it is not true distortion because as long as the film plane and lens are parallel, the image is still the same as that seen by the eye in a similar position.

A longer-focal-length lens tends to minimize these differences in size and "flatten" perspective. This effect is especially noticeable in extreme telephoto pictures.

These are just a few of the ways your lens works for you. By keeping these basic principles in mind, you can use your lens to control the effects you get and to get the effects you want.—▶

A telephoto lets you isolate interesting details

16



Using a telephoto lens to make a picture. Photo above shows how a 50-mm normal lens on a Leica saw things. The scene is pleasant but there is a mass of confusing detail which does not make a forceful photograph. The four pictures at left show how a 200-mm Telyt was used to isolate several details which make interesting pictures in themselves. By eliminating unwanted detail, long-focus lenses can often find photos.

PHOTO

THEN...

The History of Photography *by Helmut Gernsheim, in collaboration with Alison Gernsheim (London, Oxford University Press, 1955. 395 pp, 359 illus., $16.50) is destined itself to be a milestone in the history of photography. The Editors of* POPULAR PHOTOGRAPHY *were fascinated by the illustrations, which are in themselves a pictorial history of the camera and its art. To accompany Beaumont Newhall's review of the book, beginning below, we are reproducing several pictures from it, together with some strikingly comparable modern photographs. A comparison might suggest that photography has not come so far in its short life span as we thought.*—ED.

By BEAUMONT NEWHALL
Curator, George Eastman House

THE greatest mystery in the history of photography, Helmut and Alison Gernsheim state in the foreword to their encyclopedic and entertaining new book on the subject, is that it was not invented sooner.

The principle of the camera was known in the Middle Ages, and artists began to use the camera to solve problems of perspective in the sixteenth century by tracing the groundglass image. The fact that silver salts turn dark on exposure to light was discovered in the eighteenth century. Yet not until the nineteenth century were these optical and chemical (*Continued on page* 174)

1867

All historical photographs on these pages are from the Gernsheim Collection.

GRAPHY

AND NOW

Courtesy Life, © Time, Inc.

Julia Margaret Cameron made the powerful portrait of poet Sir Henry Taylor, left, in 1867. Eighty-odd years later, Alfred Eisenstaedt made the strikingly parallel study of sculptor Augustus John, right.

1864

Lady Hawarden, a contemporary of Mrs. Cameron, made "The Toilet" in era of U. S. Civil War.

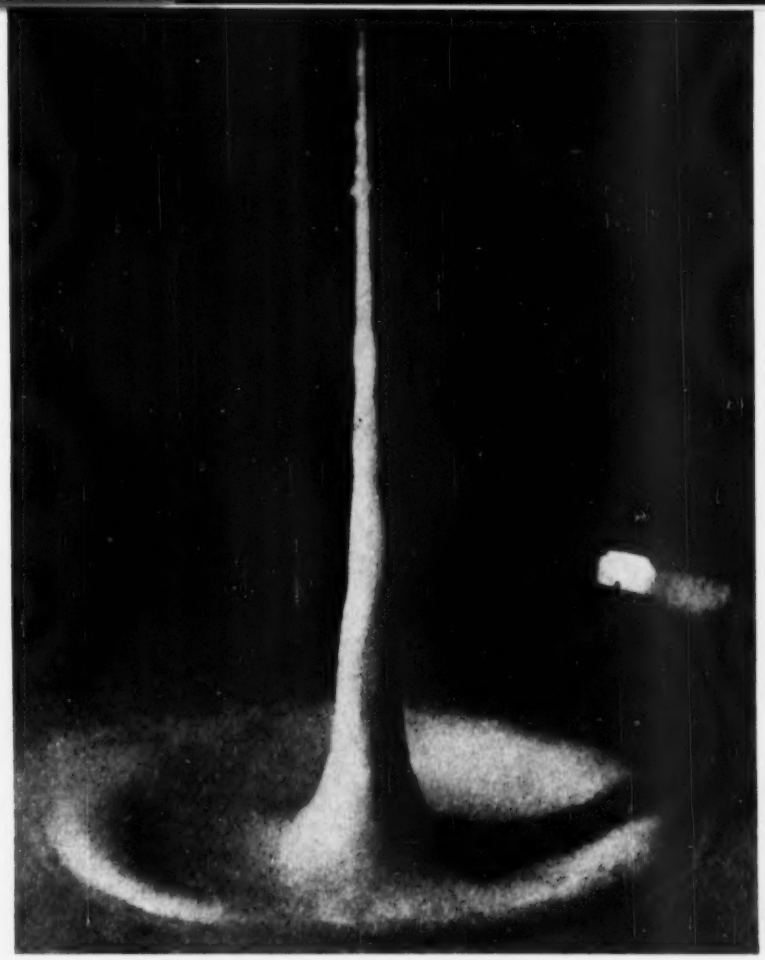
Modern treatment of same subject, by New York pro Jerry Cooke, has some of the charm of the earlier work.

1885

Derby-hatted high jumper (left) was stopped in mid-leap by Viennese amateur, Count Esterhazy, who apparently knew peak-action technique. A small boy's jump, above, was shot from high angle by present-day amateur Donald Richardson.

→

Milk splashes have long been favorite subjects of high-speed photographers. A. M. Worthington made top picture with early version of speedlight, which made exposures as short as 1/100,000 second. Modern portable electronic-flash units were used for U. S. professional Joseph Foldes' unusual splash shot, below.



1900

1884

Birds in flight are another natural high-speed subject. Ottomar Anschutz of Prussia caught a stork leaving its nest (top) with focal-plane shutter at about 1/1,000 second. Below, German amateur Schutzenhofer shot mother swallow feeding young; he used modern electronic flash at 1/5,000 second.

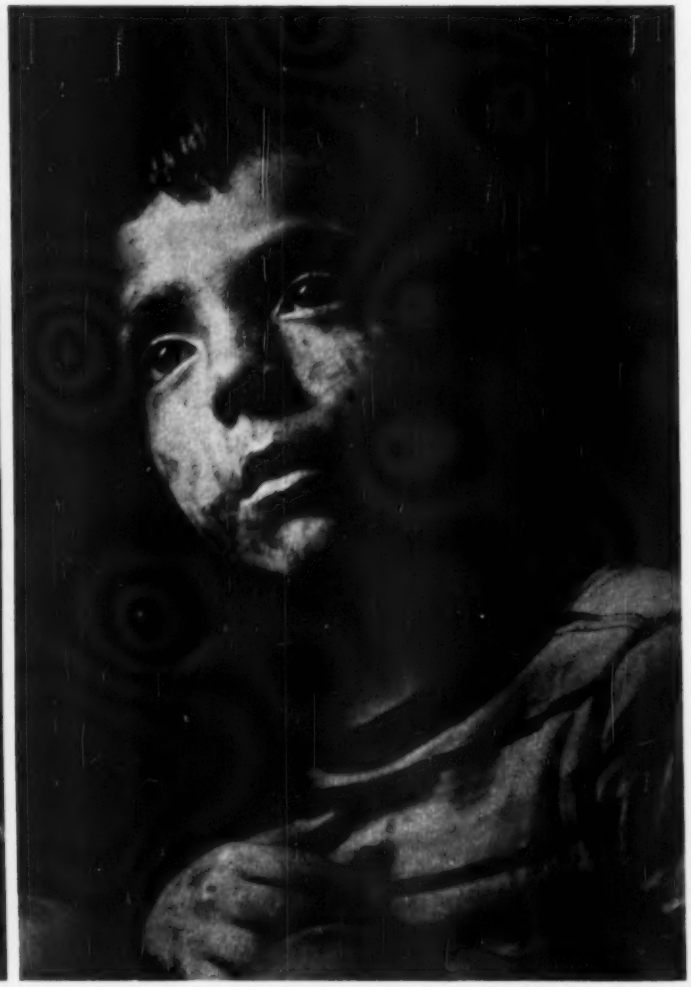
1891

Sarah Bernhardt listens to replay of recording. Photo is by an unknown photographer.

→

Jeanmaire hears record of music for film in an available-light picture by Sanford Roth.

1860 *Street urchins of London, an early classic of photojournalism, by Swedish-born O. J. Rejlander.*

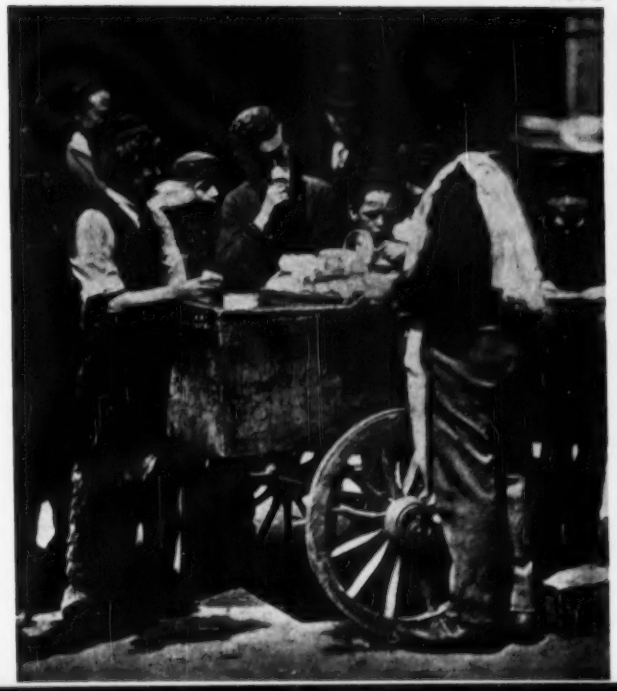


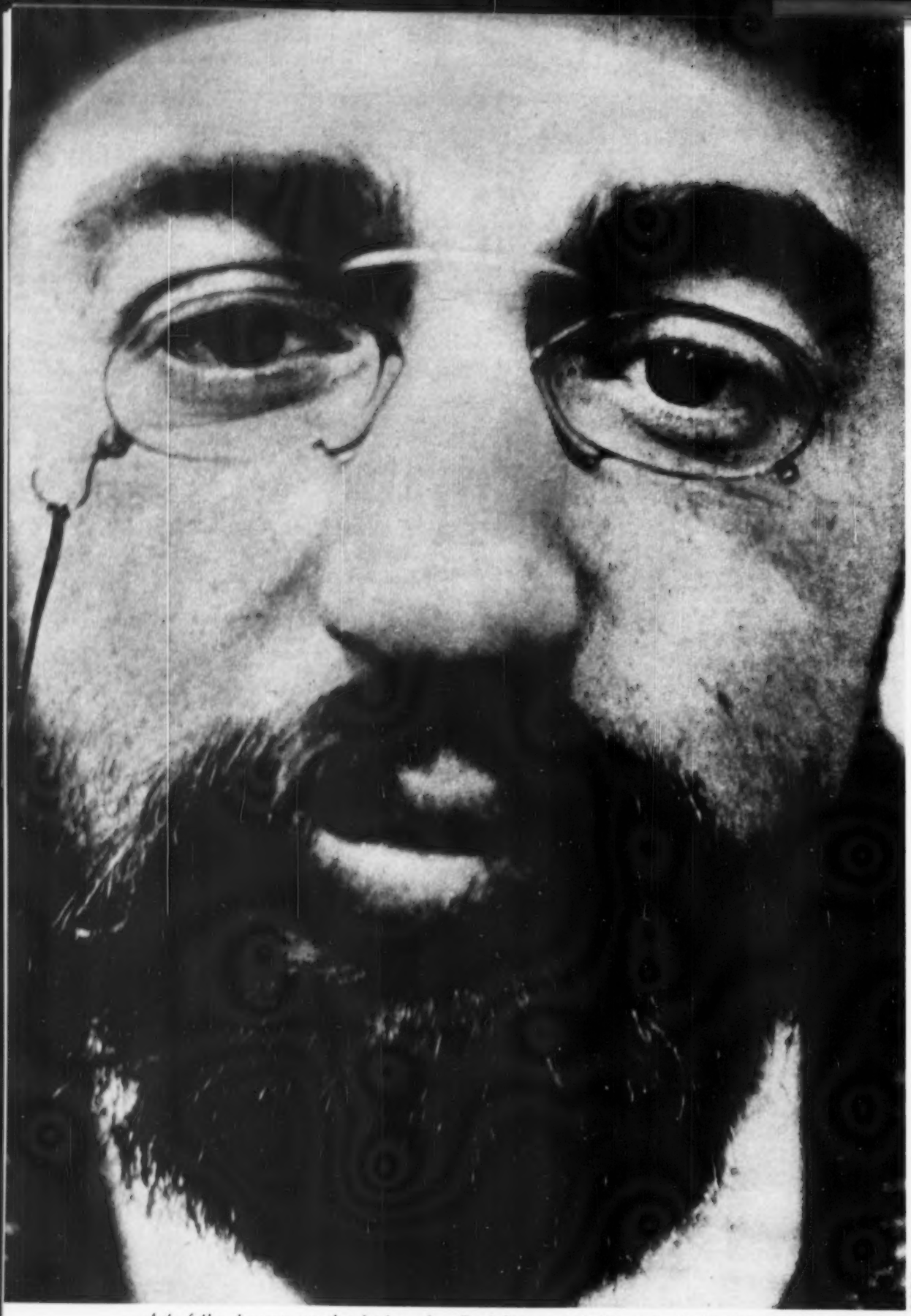
Today's children of the streets are portrayed here with similar feeling, in a picture by American pro Benn Mitchell.

Documentary cameraman John Thomson photographed Italian ice-cream peddler for a book, Street Life in London, *by journalist Adolphe Smith.*

Parisian ice-cream and balloon man, with entourage of children, was caught by modern Frenchman, Savitry.

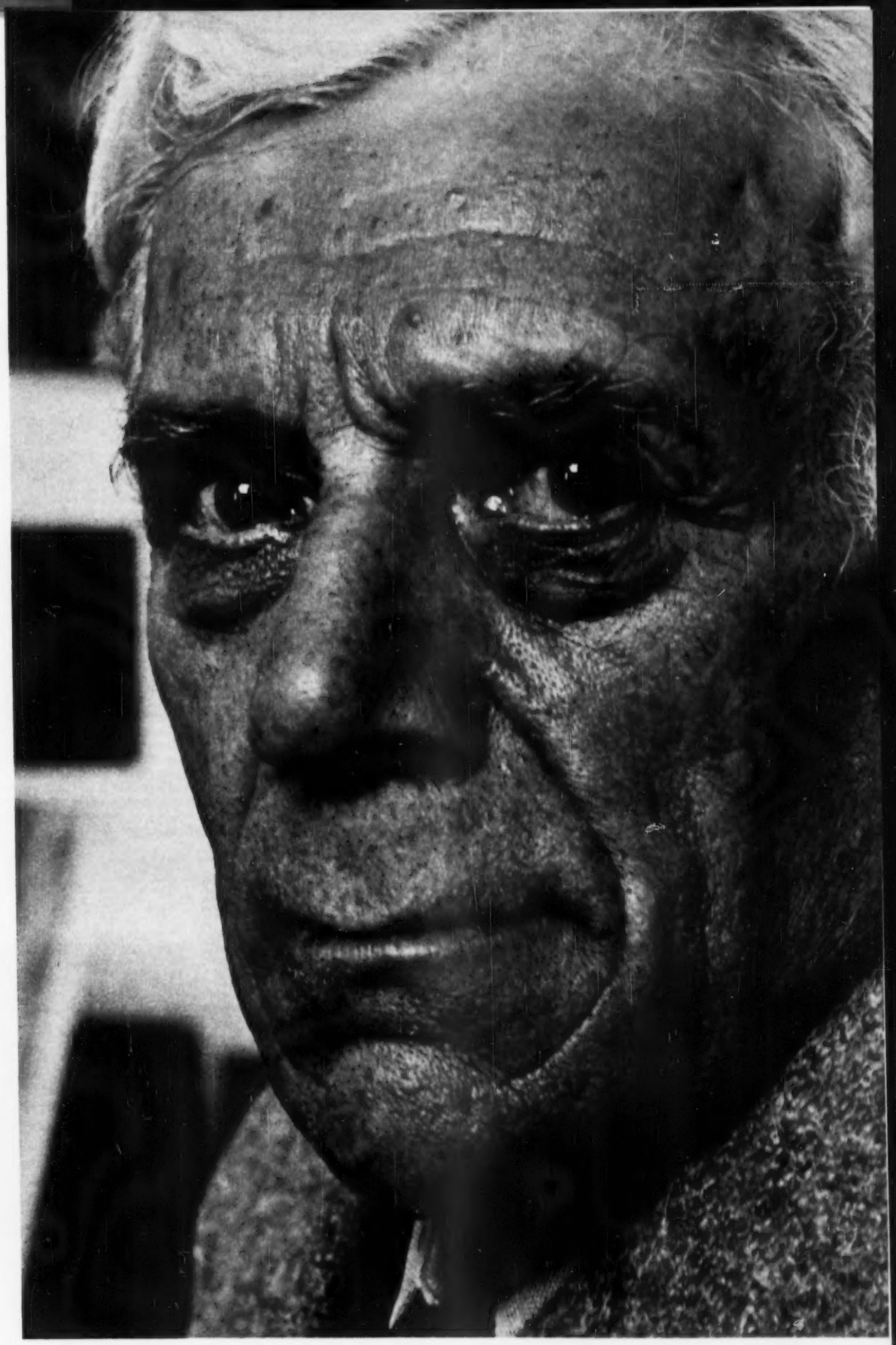
1876





1896

Art of the close-up was developing when Paul Sescau took this portrait of painter Toulouse-Lautrec.



Incisive lens of 35-mm camera helped Sanford Roth make a comparable shot of artist Georges Braque.

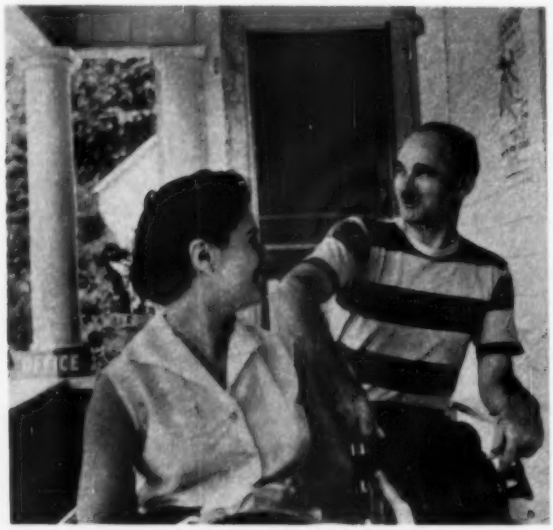
PRINT ■ CLINIC

WHAT'S WRONG WITH

A new department of print criticism for amateurs

Bill Barnsdorf, Hempstead, N. Y. If this was intended to be more than a depth-of-field test, it did not quite succeed. The texture of the pavement in the foreground, and the perspective resulting from the shooting angle, are interesting, but the picture has no center of interest. Cropping as indicated would improve the composition a little.

Contax II, Super-XX, 1/100 second, f/22



Elmer Archer, Reading, Pa. This is a pleasant double portrait, made at a fortunate instant when both expressions were animated and warm. But there is far too much clutter in the background and foreground. Even cropping could eliminate only part of it. Girl's profile is lost in merger with background. Wider aperture, better angle would have helped.

Graflex 22, Plus-X, 1/100 second, f/8

Robert Upjohn, Skokie, Ill. This flash-on-camera baby picture has a lot of appeal, but the skin tones suffer from the intensity and directness of the light. Suggestions: diffuse flash with a handkerchief or plastic cover on the reflector; use extension cord and hold flash at arm's length; or use bounce-light technique, with correspondingly longer exposure. Any of these would make light quality more flattering, and improve modeling in the face.

Kodak 35, Plus-X, 1/200, f/11, SM bulb

←

MY PICTURE?

by the editors of POPULAR PHOTOGRAPHY

Natalie Schmidt, Atlanta, Ga. Shooting against the light is a tricky technique; it provides some wonderful effects, especially for children's portraits, but it can also have unfortunate results. Here, one side of the child's head is merged with the bright background. Another camera angle might have been chosen, so that a shadow area would outline the face against the window. Otherwise, the pose is charming and soft light models the features nicely.

Leica Ic, Ansco Supreme, 1/100 second, f/5.6

Marvin Hellman, Chicago, Ill. Here is a fine attempt at an informal full-length portrait. Backlighting adds interest, but it might be argued that there is not enough detail in the shadow areas, especially the boy's face. The concept of framing for a tall vertical is original, but the picture might be improved by removing the building wall at left altogether. Background is interesting, need not be considered distracting.

Nikon, Super-XX, 1/200, f/11, overcast sky

Mary Stevens, Denver, Colo. First of all, the picture is out of focus. A rangefinder, or measuring of the distance, could have corrected this fault. The shot otherwise has possibilities, in the contrast between the girl's face and the rough tree bark. But the inclusion of the whole figure does not help. Cropping strengthens the portrait, but enlargement would be out of the question.

Realist 35, Tri-X, 1/100 second, f/5.6

←

→

Lawrence Fischer, Seattle, Wash. It is the arrangement, and not the subject matter, that makes a picture like this—although snow does have an appealing freshness. But sometimes the simplest compositions are the hardest to handle. This one does not seem to "hang together" in a satisfying way. Closer study of the scene would probably have disclosed a dozen more pleasing arrangements.

Rolleiflex, Super-XX, 1/250 second, f/16

Pictures submitted for Print Clinic will not be returned

The Kodak BULLETIN

Jewel boxes for

—or, how a bright new idea in plastics ends the butterfinger era . . . a place for everything, and no more thumbprints on the K2! Also, a further note on the almost-grainless new Kodacolor Film and Type C Color Print Material . . . how to prevent dog days in the darkroom . . . the formula for a good color slide projector . . . rough versus smooth prints . . . and some useful points on flash and the new $9.95 Super-M.

Jewel boxes

Kodak filters—Wratten and Pictorial—come in many delicious flavors and transparent jewel colors to make light-waves dance to practically any tune you choose. These filters have long been a source of great satisfaction to hundreds of thousands of customers, and to us. The *packaging*, however, we have never been quite satisfied with—until now!

We are happy to announce that a new era is ready to dawn. Through some bright new design ideas, and the amenability of modern plastics, you will now be able to tote your favorite filters in full-visibility cases that put each slice of the spectrum right at your finger-tips.

In the future, when you buy a single Kodak Filter, it will come in a compact crystal-clear case with a sliding side panel—and a bayonet fitting molded on so you can lock it to similar unit cases in a "stick" of any desired length:

This is a very neat deal, which keeps your filters together in a snug unit—lets you see them all at a glance before you open anything—lets you sequence them in any order you like—and permits you to build a kit of any number of units, chosen to fit your individual needs, yet keep everything in a tidy, uniform arrangement.

But this isn't all. We've gone farther. A lot of people have need for a basic package of most-needed filters—a general-use yellow filter for black-and-white shots, a daylight conversion filter for Type A *or* Type F color films, and a daylight-type color film filter to prevent excess blue in open-shade, hazy-day, and distant-scenic shots.

So, your Kodak dealer will have a large group of Kodak Filter Kits—a basic five-compartment case, and contents to fit practically any popular amateur camera:

There will be a Kodak Signet 35 Filter Kit, Kodak Bantam RF ditto, Kodak Pony ditto, Kodak Duaflex ditto, and kits for the Argus C-3 and C-4. Each of these kits contains a Kodak Pictorial Filter (Yellow), Kodak Skylight (Wratten 1A), the Type F conversion filter (Wratten 85C), and an Adapter Ring of correct size.

There will also be Series 4, 5, and 6 kits with the same filters. Your dealer adds the specific Adapter Ring that goes with your camera (and when we look at our stock, we think there must be millions of these).

Also, there will be a four-item kit for the Kodak Stereo Camera. If this seems inadequate for a two-eyed camera, don't get excited. Two Adapter Rings *come with* the $84.50 Kodak Stereo Camera. The filter kit contains two Skylight Filters and two Type F filters, which fixes you up for color. Practically nobody shoots black-and-white stereo, so the Pictorial Yellow is eliminated.

There will also be four-item kits for movie cameras—Series 4 and 5, and for the Kodak Brownie Movie Camera and Cine-Kodak Medallion 8. These have the Type A conversion filter instead of the Type F—because indoor-type movie Kodachrome Film is still balanced for photoflood, and the Type A filter is correct for switching it to daylight use.

Prices. The Kodak Filter Kits, including the filters, range from $6 to $10.10 each. The kit cases are also available alone, $1.50 to $2.50. Single Kodak Wratten Filters in the new bayonet-type cases, in Series 4, 5, and 6, are $2.25 to $2.95 each for the most popular types. And in addition to all the above, there are special kits and filter cases for the Kodak Retina Cameras.

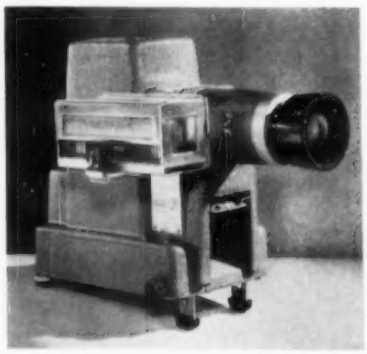
If all this seems a bit complex, let your Kodak dealer show you the details. One thing is sure—you'll find this is the neatest, handiest filter-case system you've ever seen.

This it?

What do you want in a 2x2 slide projector? As much light as possible on the screen? Sure. Blower cooling that's as quiet as a kitten? Naturally. The kind of optical quality that brings out all the color in your slides with the image sharp as a tack over the whole screen? Sure. Automatic slide changing? A must. Protection for your slides so that the heat won't damage them? Of course.

Then you want a Kodaslide Signet 500 Projector.

Light? Take any projector of comparable wattage and compare, side by side, with a Signet Projector. You'll see the difference at once. Cooling? The special impeller on a Signet takes care of the noise end, yet really blows, too. Run one for a couple of hours and then feel the



lamp housing. Only slightly warm to the touch—not blistering hot. Image quality? Try some of your slides and you'll find they never looked better. Heat affect your slides? Not much chance with the cooling air running around the slide, condenser lens, and lamp, and special

fine filters

heat absorbing glass taking out much of the infrared before it reaches the slide.

Cost? Kodaslide Signet 500 Projector with Automatic Changer, 5-inch Kodak Projection Ektanon Lens, *f*/3.5, 500-watt lamp, $82.50; with *f*/2.8 lens, $89.50; without Automatic Changer, $10 less. (If you need less power, then look at the Kodaslide Signet 300 Projector with a 300-watt lamp, Automatic Changer and an *f*/3.5 lens for $69.50; without changer, $59.50.) All at your Kodak dealers.

Dog days

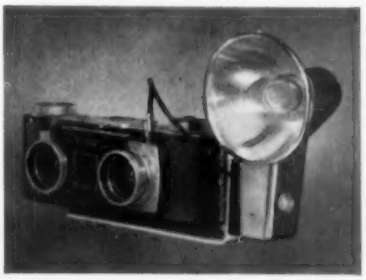
Some days you don't make a nickel . . . days when your exposure judgment is flat and so are the prints . . . when the middletones are muddy and the blacks are mushy gray . . . when negatives won't match the paper you're using . . . when you'd rather drop dead. Cheer up! Here's the happy answer: switch to *Kodak Medalist Paper*. It's the *flexible* paper—lets you range up and down the contrast scale by adjusting exposure and development time. In just about every texture, surface and printing grade you could want, at your Kodak dealer's.

Look and find out

You don't know what modern color stereo is until you've looked at some of it. Oddly enough, a great many people—including a goodly quota of advanced amateur photographers—haven't taken a look yet.

So, always helpful, Kodak has snapped several thousand stereo *originals* on Kodachrome Film, to send one or more to most Kodak dealers. No duplicates—all original made-in-the-camera shots. Your dealer should have his by June 1.

Drop by for a look. While you're there, take a detailed look at the $84.50 Kodak Stereo Camera. It's one of the



sweetest-handling cameras ever made; better still, it lets you get into top-quality stereo at a sensible price.

Flash tips

▶ If you're in love with your old flash gun even though it's beginning to lose its pep, here's a suggestion: a Kodak B-C Flashpack will put the breath of life into any flasholder that takes two "C" size batteries, give you all the dependability of battery-condenser power, longer life for the battery. All for only $2.95 (less battery).

▶ A word of warning. When you put batteries or a flashpack in a flash gun that has a *metal* case, better wrap them in paper so there will be less chance of shorting.

▶ Incidentally, if you have a Kodak Flasholder, you don't have to worry about shorting and having your new battery bleed to death. We make the barrel out of strong plastic to stand the bumps and bangs a flash gun gets. And the plastic protects you against shorting—it's an insulator. The Kodak B-C Flasholder is $9.95 in black or brown. The new Kodalite Super-M Flasholder for midget bulbs is the same.

▶ You might be interested in knowing that the amazing efficiency of the Kodalite Super-M Flasholder stems largely from the small size of the bulb. The tiny bulb comes closer to being a "point source" of light and that lets us design a more efficient reflector *shape*.

Rough stuff

Our new cream-white Kodak Ektalure Paper X has the rough, canvas-like texture we call "tapestry." This surface has always been popular (in old-ivory Kodak Opal Z) for big prints and "broad" effects with the fine detail subdued. At the opposite end of the texture scale are glossy Ektalure F, Kodak Medalist F, and Kodabromide F. These papers are popular with people who (a) like the finest possible detail, and (b) take a very dim view of the people who like broad effects and rough surfaces.

If you are not sure where you stand in this controversy (it has been going on for many years), the best way to find out is to get some 16 x 20 F and X, make some prints, and compare them. If you find your preferences lie in between, there are plenty of other surfaces to choose from. The one most often chosen is our fine-grained lustre G, in either Medalist or Kodabromide.

What, no grain?

Recently we reported that the new indoor-outdoor Kodacolor Film "has a finer grain structure than the old Kodacolor—so, with a good lens, it yields sharper color negatives—which make sharper color prints."

This is putting the proposition so mildly that we'd better amplify it.

One of our men has been showing a bunch of 30x40-inch color prints (made from 2¼ x 3¼-inch negatives on the new Kodacolor) with grain so fine you can't even see it at normal viewing distance. Incidentally, he made these blow-ups on the new Kodak Color Print Material, Type C, using a regular amateur enlarger with a tungsten photoenlarging bulb and a Kodak Enlarging Ektar Lens.

Sure, any film has grain—but if you can't even notice it in a big blow-up . . .

The big story in the new Kodacolor, of course, is its convenience and its extraordinary quality. No filters, no blue bulbs . . . same roll of film for both daylight and clear flash . . . and some of the most beautiful color prints that ever made your eyes pop. Try it—soon.

Selling ourselves short

We like to sell paper. That's our business. Yet, here we go again suggesting that you buy a Kodak Projection Print Scale so you won't waste paper. Gives you 10 test prints at one exposure in steps from two seconds to one minute. Shows you the right exposure time first crack out of the box. Your Kodak dealer sells it for $1.15—nowhere near the cost of the paper it can save you.

Prices include Federal Tax where applicable and are subject to change without notice.

Kodak
TRADE MARK

EASTMAN KODAK COMPANY, Rochester 4, N. Y.

ZOOM CAMERAS

Keystone K-32Z 8-mm Auto Focus camera: *Focal length range*—9.5 mm to 28.5 mm; *diaphragm range*—*f*/2.4 to *f*/16; *focusing scale*—3 feet to infinity; *parallax correction*—for shooting at 5 feet or closer, viewfinder is marked; *frames per second*—12, 16, 24, and 48; *price*—K-32Z roll-film camera, $239.50, K-32Z magazine load, $249.50. Zoom lens (made by Ednalite) is installed at the Keystone factory.

These frames illustrate how the zoom camera can be used. Moving in, the scene builds up from the general to the specific. The characters are brought up dramatically into a close-up. Moving back, from right to left, the scene takes the emphasis away from the central characters. The zoom camera also allows the photographer to shoot any one of these 5 shots without zooming—a close-up, medium, long shot.

Although zoom lenses have been available for some time, as accessory lenses, not until recently have motion-picture-camera manufacturers hit upon the idea of a zoom camera—a unit with one lens that will do the work of a 3-lens turret, and also zoom. (One manufacturer offers a camera with the lens factory-installed, while the other sells a zoom lens and a camera body as a package.)

For the amateur who is about to enter motion-picture making, and for the amateur who has outgrown his single-lens camera, the zoom camera is especially important. It is a versatile camera that can make exciting motion pictures.

The advantages of the zoom camera over turret model cameras are quite evident:

First, the zoom lens can be used at any focal length you want, and therefore, in it you have as many different lenses as there are settings between the maximum and minimum focal length of the lens. For example, in a lens that has a range from 9.5 mm to 28.5 mm, you can have a 10-mm lens, 11-mm lens, 12-mm lens, and so on right up the scale to 28.5 mm. With a zoom camera you can make the lens fit the

ARE HERE

By ALLAN GREEN

Bolex-Pan Cinor Universal 8-mm camera: *Focal length range*—12.5 mm to 36 mm; *diaphragm range*—f/2.8 to f/22; *focusing scale*—2.5 feet to *infinity* (scale is also marked in meters); *parallax correction*—has manual adjustment for correction; *frames per second*—8, 12, 16, 24, 32, 48, and 64; *price* (both camera body and lens sold as package) is $214.95.

Zoom series by Albert Freed

the scope of your scene by moving the lens bar up or down.

Second, the zoom finder does away with the awkward turret finder. As you change the field of view on the zoom taking lens, you automatically change the field of view in the viewfinder. This is true of both zoom cameras.

Third, once you have set the *f*-stop for a scene on the zoom lens you're always ready, while on a turret model there are three settings to consider.

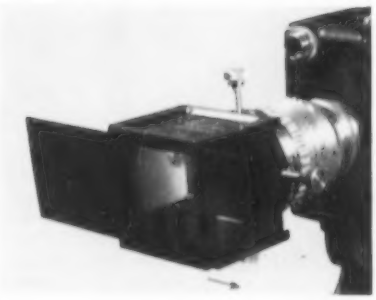
Fourth, the zoom camera gives you something a turret model cannot—a zoom. Hollywood and television have used the zoom so often and effectively that it is unnecessary to define it. From high up in a stadium, the lens has zoomed down and picked out a single player running with the ball. In a crowd, the zoom lens has picked out a single face, and brought it close-up on your screen. This camera can be the device that will take your moviemaking out of the doldrums.

The cost of the zoom camera is slightly higher than that of a turret model, but the advantages seem to compensate for this difference. (However, if you remember back a few years, you may be consoled by the (*Continued on page* 112)

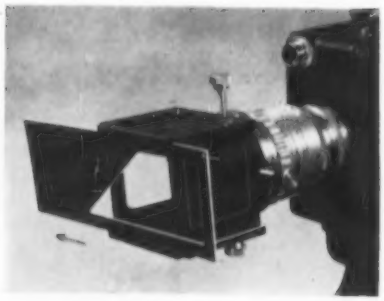
NEW SPECIAL EFFECTS DEVICE

Low cost 3-V unit can give simple cameras the versatility of high-priced models

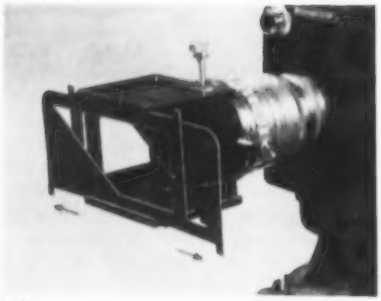
Photographs by Allan Green



Fade slide moved to right produces a fade-out. Moving it to the left causes a fade-in effect.



Wipe slide pulled left will wipe a scene onto your screen. Pull it right, and it will wipe scene off.



Two wipe slides pulled open from closed position will cause scene to come out of middle of screen.

Simple motion picture cameras can be turned into highly versatile units by means of the 3-V attachment. This device, manufactured by the Davis & Sanford Co., of New Rochelle, N.Y., will produce wipes, fades, trick shots, and other special effects. The unit sells for $16.50.

What's in the 3-V kit and how does it go on your camera?

These are the components of the unit: a matte box; a 45-degree-angle 2-way mirror, a wipe slide, double wipe slide, fade-out slide; 100 percent reflectance 2-way mirror; close-up attachment; two black mattes and a viewfinder.

If your lens takes a Series IV filter, the attachment will screw directly into the filter threads on the lens. If it does not, there are four thumb screws on the unit which attach the unit to almost any 8- or 16-mm movie-camera lens. It can be attached in seconds.

What can you do with it?

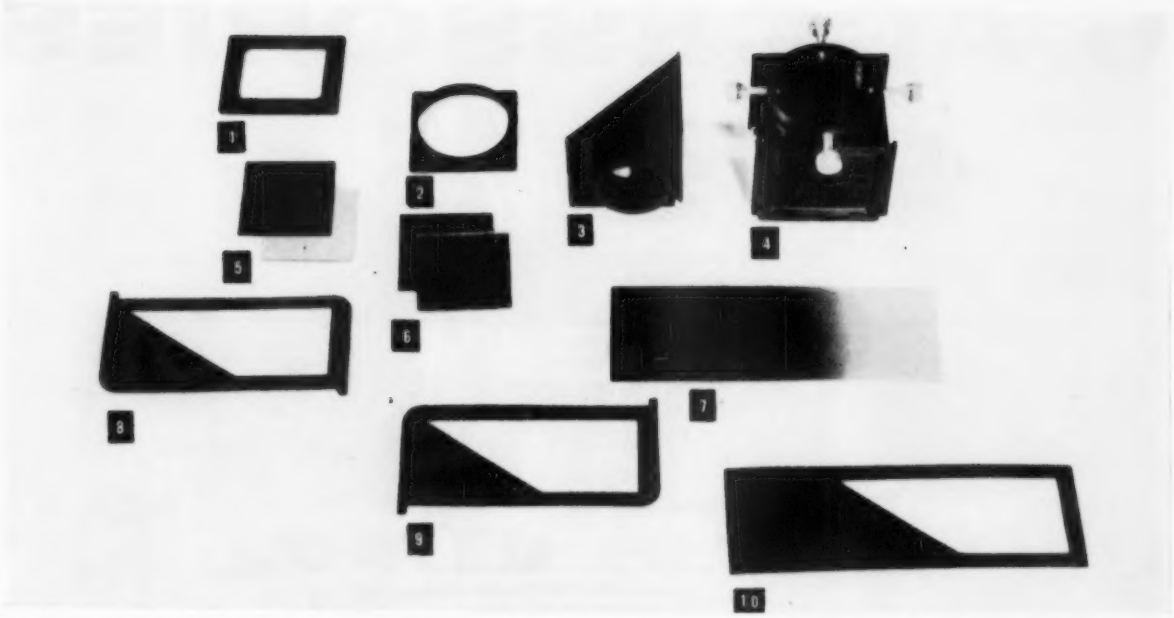
Fades: When the fade slide of the kit is slipped through the front element of the matte box and moved to the right or left, a fade-in or fade-out is produced. The fade slide is a piece of glass that varies in density from opaque to clear glass.

Wipes: Several different types of wipes can be produced by using a single or a combination of two wipe slides. The scene before your camera can be wiped on or off from left or right. Your scene can also blossom out from the center of your screen and disappear right back into the center again.

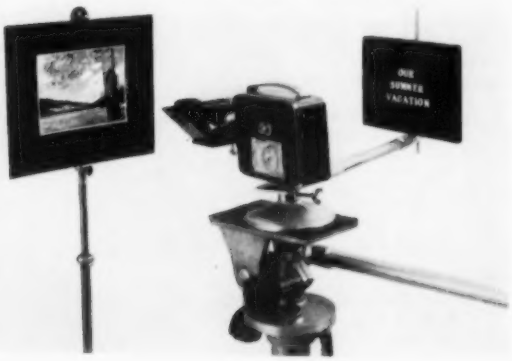
Superimposed titles: With the title at the right of the camera, and a scene in front of it, the unit will combine both elements and produce a film in which the title is superimposed over the scene. The title should be mounted on a black background. This idea will work indoors with photographs, as well as outdoors with natural scenes and moving subects.

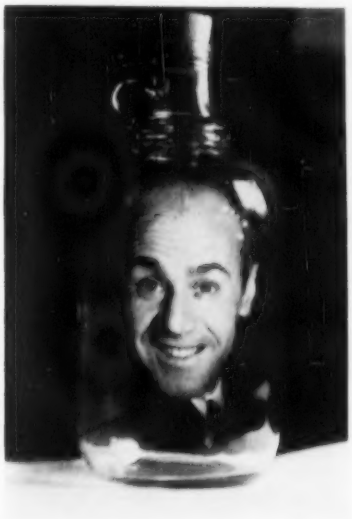
Tricks: The possibilities of making trick shots with 3-V are almost limitless. You can make a person's head look as if it were in a bottle. By dropping bits of white paper in a fish tank, and photographing it along with a general scene, you can make it appear in your scene as if it were snowing.

This device is both practical and entertaining.—▶

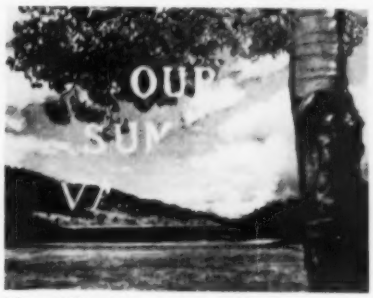


Here are the components of the 3-V kit: **1** Mirror holder. **2** Close-up lens adapter. **3** Viewfinder. **4** Plastic matte box. (This basic unit fits on camera lens.) **5** A 2-way mirror and regular mirror. **6** Solid-black mattes. **7** The fade slide. **8, 9,** and **10** Wipe slides.





Two special effects that can be produced by using the 3-V attachment are illustrated here. The man in the bottle (right) is a simple "double" exposure produced by seating the man at the right of the unit, and placing the bottle in front of it. By carefully maneuvering the position of the camera and the man's head, the head was superimposed in the bottle. *Our Summer Vacation* (below) was wiped over the landscape, using the 3-V attachment and a wipe slide. The set-up (above) shows how the title and background scene were placed. Unit "sees" both images at once. Title goes on black background to avoid extra images on the scene.

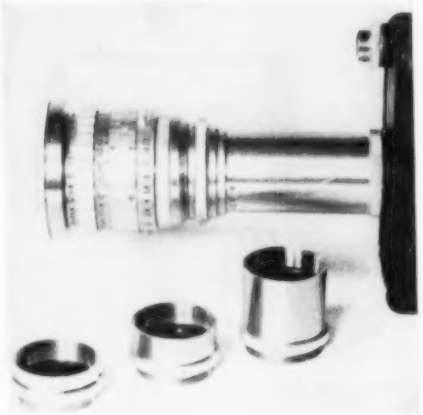


6 ACCESSORIES

To help you make better films

Photographs by Allan Green

Shadow density can be easily calculated for black-and-white or color shooting with Color Contrast Spectra filters. Hold filter to eye and check areas in your picture. You will see your scene as your film "sees" it. Each filter sells at photo stores for $3.95.

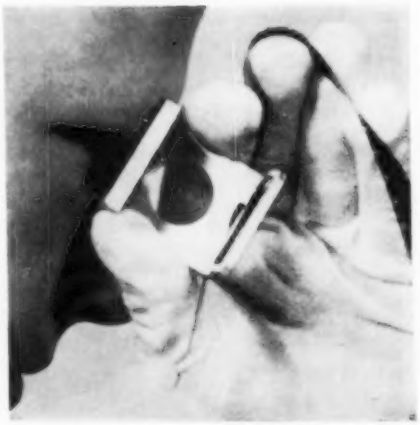


Still-camera lenses that have Leica-type mounts can be used as telephoto lenses on 16-mm motion-picture cameras having C-mounts. All that is necessary is this adapter. When buying, state what lens will be used. Adapters vary in size. Price is $16.50.

For close-up work extension tubes are an absolute must. The Bolex unit shown here takes 16-mm C-mount lenses and can be ready for use instantly. Focusing chart is supplied with the lens and simplifies this operation. Tubes vary in size. Price, $15.50.

Temporary splices can be made of 8- or 16-mm films during the editing process with a special tape called Kum Kleen. The tape cannot harm film by leaving a residue. It comes in all sizes, and is easily removed. Price (500-piece roll) is $1.50.

Perforated Mylar Tape is available for movie makers who work with 16-mm film. The tape matches sprocket holes on film and can splice film quickly. A splice with this tape will hold strong enough to allow film to be projected. Price, (660-ft roll) $5.



Photographers who want to check their shooting results immediately without going to the trouble of setting up a projector can rely on the magnifying loupe viewer. It magnifies either 8- or 16-mm film 15 times, and is pocket-size. Its price is $2.95.

IMPROVE EVERY PICTURE YOU TAKE!

WALZ MOUNTED
SCREW-IN FILTERS

So compact that case can be closed without removing filter.

"CUSTOM-FITTING" NO ADAPTERS NEEDED

PRICES ON WALZ "CUSTOM FITTED" FILTERS

Walz "Custom-Fitting" Filters To Fit Cameras or Lenses Listed Below. Walz Filters are also available for many cameras and lenses with threaded or bayonet lens mounts not listed. Each filter or close-up lens is threaded on both sides so that the Walz Screw-in Lens Hood will screw into either the filter or camera lens.	WALZ Individual Filters Colors Available: Type F Skylight Clearflash Type "A" Yellow Red Green	WALZ Filter Kits Color Kit Contains: Type F Skylight Clearflash Black and White Kit Contains: Yellow Red Green	WALZ Close-Up Lenses Sizes Available: +1 +2 +3 Screw-Into Each Other For Higher Power	WALZ Close-Up Lens Kits Kit Contains: +1 +2 +3 leather case	WALZ Lens Hoods SCREW-IN for all filters and lenses BAYONET for Rollei
#101 **ARGUS C-3**, Argus C & C-2 Elmar f3.5	1.95	5.75	2.50	6.95	1.95
#103 **RETINA** IA f3.5, Simer-Ruldi-nette f2.8, Retina Curtar 35mm f5.6	2.95	8.75	3.50	9.95	2.95
#104 **RETINAS** f2 and f2.8, Retina IB, IIC, IIIC, II, IIA, IIB, Kardet and Kardinat	2.95	8.75	3.50	9.95	2.95
#105 **CONTAFLEX**, Contessa, Contina Tessar f2.8, Iloette SE	2.95	8.75	3.50	9.95	2.95
#106 **LEICA SUMMAR** f2, Elmar 90mm f4, Hektor 135mm f4.5, Minolta X, f3.5, Canon 100mm	3.95	11.75	4.95	13.50	3.95
#107 **CONTAX SONNAR** f2 & f1.5, Zeiss Ikonta, Praktica Pentacon, Tessar Prosnet f3.5 & 2.8, Biotar f2, Nikkor f2	3.95	11.75	4.95	13.50	3.95
#108 **LEICA SUMMITAR** f2, Colinear 135mm f4.5 & 85mm f2.8	3.95	11.75	4.95	13.50	3.95
#109 **LEICA SUMMICRON** f2, Leica M-3 Bayonet Mount Lenses, Elmar, Hektor, Summarit	3.95	11.75	4.95	13.50	3.95
#108 **EXACTA BIOTAR** f2, Prosnet Automatic Biotar f2	6.95	20.75	7.95	21.50	6.95
#111 **KODAK SIGNET** f3.5, Kodak Bantam B.F. f3.9, Cine-Kodak Royal Ektar f1.9 & 2.8	2.95	8.75	3.50	9.95	2.95
#114 **NIKON NIKKOR** f1.4, Nikkor 35mm W.A. f2.5 & 3.5 (New), Nikkor 135mm f3.5	3.95	11.75	4.95	13.50	3.95
#118 **CANON** f1.8, 50mm f1.5, 135mm	3.95	11.75	4.95	13.50	3.95
#121 **IKOFLEX**, Models I, II, IIA, III	3.95	11.75	4.95	13.50	3.95
#123 **GRAPHIC** "33" f2.5 & 2.8	2.95	8.75	3.50	9.95	2.95
#124 **ARGUS C-4**, Realist 35 & 45, Ilon Quick A & B & Stereo, II, Vio III f2	2.95	8.75	3.50	9.95	2.95
#125 **LEICA SUMMARIT** f1.5, Westanar 50mm f2.8 (automatic) Westagon 50mm f4 (automatic), Switar 50mm f1.4	3.95	11.75	4.95	13.50	3.95
#101 **ROLLEI** f3.5, Bay-net, Minolta Autocord f3.5, Airoflex f3.5	3.95	11.75		14.95	3.95
#103 **ROLLEI** f2.8 C & D Bayonet	6.95	20.75		22.95	6.95
#104 **VITESSA**, all Bayonet Lenses	3.95	11.75	4.95	13.50	3.95
WALZ COATED SERIES SIZE FILTERS TO FIT ALL SERIES ADAPTER RINGS					
SERIES IV	1.75	4.95	2.50	6.95	X
SERIES V	2.25	6.50	2.95	8.75	X
SERIES VI	2.75	7.95	3.95	11.75	X
SERIES VII	5.50	16.50	6.95	19.75	X

ALL WALZ FILTERS ARE GUARANTEED FOR LIFE

Precision ground and polished optical glass. Exacting transmission characteristics.

Walz Coated Filters For Color Films

Walz Type F Filter (#85C)

Use to convert Type F color films to daylight use.

Walz Skylight Filter (#1A)

Use in open shade or on cloudy days to eliminate haze and absorb ultra-violet and blue with daylight color films.

Walz Clearflash Filter (B-7)

Use to convert daylight color films to use with clear flash bulbs. Takes the place of costly blue flash bulbs.

Walz Flood Lamp Filter (#82A)

Use to convert Type F color films to use with photo flood lamps.

Walz Type A Filter (#85)

Use to convert Type A color films to daylight use.

WALZ COATED FILTERS FOR BLACK-AND-WHITE FILMS

Walz Yellow Filter (#K2)

Normal contrast correction for pan and ortho films. For white clouds and darker sky. Ideal for landscapes, sunsets, beach, snow and mountain subjects.

Walz Red Filter (#25A)

For dramatic contrasts. Pronounced cloud effects. Excellent for fog, haze and mist. Use with pan or infra red films.

Walz Green Filter (#X1)

Correct tonal rendering of flowers, scenics, foliage, trees, etc. Eliminates chalky appearance of flesh tones in flash portraits. Use with pan films.

WALZ CLOSE-UP LENSES FOR ALL FILMS

Extends focusing range for copy work, portraits, animals, flowers, small objects.

+1 (16 ⅞ inches to 39 inches)
+2 (11 ⅞ inches to 19 ½ inches)
+3 (9 ⅞ inches to 13 inches)

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Zoom Cameras Are Here

(*Continued from page* 107)

fact that the cost of a zoom lens alone was more than the present price of a zoom camera.)

Now, let's consider how the zoom camera actually works, and how your technique will change when you are using it:

Camera body and settings. Both bodies on the zoom cameras are standard models. There is no change in the way you wind the spring or change the frames-per-second settings.

Use of tripod. When using the zoom lens as you would any other lens (that is, at a set focal length) you can shoot hand-holding it or on a shoulder pod. But when you want a zoom shot, a tripod is a must. It is almost impossible to get a good hand-held zoom—unless you have three hands. Besides holding the camera steady, you must press the shutter release and move the lens bar, all at the same time.

Focusing. When focusing on general scenes, use the zoom camera as any camera. Judge the distance your lens is from your subject and set this distance on the focusing scale. When doing an extreme close-up, measure the distance that your lens in telephoto position will be from your subject and use this number for your focusing.

Composition: Because the composition in your picture changes as you zoom, you must carefully study your scene. How does it look at the start of the zoom? How does it look at the end of the zoom?

With zoom shots, a *dry run* is recommended. Before you shoot, go through your scene, carefully watching the composition through the viewfinder. Maybe a lower or higher angle will make your zoom more effective. Try your shot several different ways and then decide on the best shooting position.

Timing. You can have a fast zoom, or a slow zoom. The final effect you want will decide the length of time it should take. A fast zoom creates excitement. A slow zoom is more "polite." By changing the length of time of your zoom, you change the pacing in your film.

Distance of Zoom. When you own such an ingenious and effective device it is only natural to overdo the use of full zooms, but short zooms can be just as good, and maybe even better. Hold yourself back a bit and you will produce better zoom shots. If you want good examples, watch how zooms are made on television. With a short zoom, as in television, you can change the field in your picture so it includes but two people, instead of the original four, and two may be quite enough to tell the story.

Accessories: Both zoom cameras will take filters and close-up attachments. Because you cannot use extension tubes, the attachments are musts for close-up zoom work.

Both camera bodies will take other lenses when the zoom lenses are removed.

Now, let us consider some of the shots you can make with zoom cameras.

Motion with motion: If you should put a boxing glove on one of your actors and have him throw a punch at the camera, and then zoom in toward the glove, the end result would be a shot showing the glove streaking toward the camera. If you are shooting from your car, and zoom in toward a car coming down the other side of the road, you will make your shot look as if a collision were about to take place. You can combine the motion of the lens with outside motion to create startling effects.

Combination shot. You can also combine a pan or a tilt with a zoom shot. For instance, a medium shot of a girl's feet in the shallow end of the pool, zoomed up and into her smiling face, can be very effective. A pan of Grand Canyon which finishes as a zoom into your companion's face, certainly and dramatically associates the place with the person.

Tricks. The zoom lens can help you do many tricks. For instance, set your camera at a slow frames-per-second speed as a subject slowly moves away from your position—a car backing slowly away from the camera. Once it has gone a short distance away, zoom into it. In your finished shot it will look as if you pulled the car back into your picture.

Or you can shoot a medium shot of a boy holding a toy in his hand. Zoom in toward your toy, then stop. Now, switch actors. Get a little girl to hold the same toy in the same place. Start your second shot with a close-up of the toy and zoom back to a medium shot of the little girl.

Sports work. For sports work a zoom lens is an absolute must. The next time you watch a football game, baseball game, or boxing match, watch how many times a zoom is used. The photographer who has to switch from a wide-angle lens to a telephoto on his turret in the middle of a fast play, won't get the play. A zoom lens will take your audience from general

(*Continued on page* 172)

History: For years, the motion-picture industry demanded a system of optics which would eliminate the need for lenses with a variety of focal lengths mounted in a cumbersome turret, and expensive multiple viewfinders. In the 1930s a German firm developed a vari-focal lens with a matching viewfinder for professional motion-picture use. The lens was approximately 3 feet long and weighed 15 lb. Its speed was f/5.6 and it had the habit of bouncing in and out of focus as the lens elements were changed from normal to telephoto position.

The war virtually ended the development of the zoom lens. But after it was over, television began moving by leaps and bounds, and the demand for zoom lenses became acute. Designers rushed into competition.

When professional demands for the zoom lens were filled, manufacturers turned to the amateur movie market. First, accessory zoom lenses were made, Now, the zoom camera has come into being.

Tony Venti Shoots a Spectacular

(*Continued from page* 83)

per on the ship, with invited guests, on an evening when the *Constitution* would be in port." The ad agency, American Export Lines, and Venti himself were given quotas of guests, and as they arrived for the party each was handed a dollar bill (as a token model fee) and asked to sign a release. Six professional models were engaged for key positions in the foreground of the photograph. With cocktails there was a so-called "small buffet," a table-load of delicacies that would have been fit for Henry VIII.

Tony Venti, of course, was the real "guest of honor"—the man for whom the party was given. His own preparation for the job had been long and intensive too. The day before the party, he set up his camera for test shots, to see that all would work out according to his calculations. He used an 11x14 and an 8x10 view camera, with 10-in. and 16-in. lenses, respectively. They were anchored beside the Constitution's after funnel with 100-lb weights, and protected with tarpaulins against the wind.

Meter readings were taken from all parts of the picture area, and exposure was based on a compromise—with the aid of a good deal of experience. Actually, the light was pretty well balanced in all parts of the picture. He made only three or four test shots, bracketing exposure.

For lighting, he needed 73,000 watts of electricity, and trained electrical engineers were assigned to handle it, drawing current from the pier as well as from the ship itself. There were 5,000-watt floods, 5,000-watt, 2,000-watt, and 750-watt spots, mostly placed around the afterdeck well, one level above the party and two levels below the cameras. The color shooting was done on Ektachrome (the old tungsten type; the lights were 3200 K), and exposures were ½ and 1/5 second at *f*/6.3.

In spite of the wide aperture, there is a lot of depth of field. Venti achieved this by manipulation of the back of the camera, first getting the most distant part of the image sharp, then tilting the back until the foreground became sharp.

While Tony worked with the color cameras, a movie photographer was recording the party on 600 feet of film, and two of his assistants were covering the proceedings in black-and-white stills, with a 4x5 Speed Graphic and a Rolleiflex.

Dye-transfer prints were made of the finished transparencies, as is customary in such cases; there was a bit of retouching in the water area.

The finished product, made from one of the 8x10 shots, was reproduced in many national magazines with a block of copy headed "Let yourself *go* on the Independence or Constitution," and promoting Mediterranean cruises. Venti's picture, a masterpiece of modern advertising photography, truly conveys the meaning of American Export Lines' slogan for their twin liners: "Happy Ships."—

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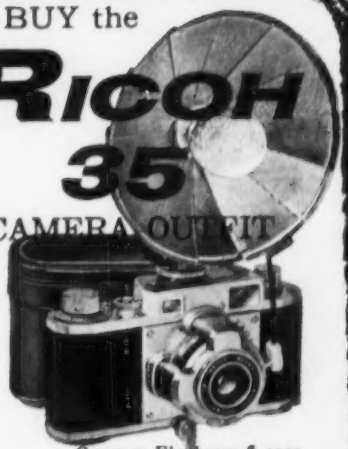

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What Happened to the Snapshot?

(Continued from page 59)

pected and usually got eight contact prints to take their rightful place in the growing family album. Those are the pictures you can look at today with nostalgia and sigh, "Remember when . . ."

Then, came a revolution! Cameras developed all sorts of complicated knobs and dials. With critical focusing, choice of f/stops, film speeds, light meters, and filters, the snapping of a shutter became a problem in mechanics and higher mathematics. Cameras were firmly removed from the hands of the women by those mechanical and mathematical geniuses of the households—the men.

Also there was the two-way stretch in size. The familiar box camera became bloated with self-importance and emerged as the press or view camera, far too hefty to be carried by members of the frailer sex. Others looked like they had been clobbered by a rolling pin and became flattened-out biscuits called "minatures." Still others ended up as two-eyed hybrids, known to the trade as reflex cameras. The familiar folding camera collapsed its bellows and quietly passed away in a moldy closet, while the durable black box Brownie glared back at impostors with its outmoded single-element lens.

The miniature, almost hidden in a man-sized hand, became the instrument of the "candid" fiend. If your spouse was one of those stricken with this "photomania candidia," you probably recall that briefly he did take pictures of the family. These included a rear view of you stooping over the family wash or a close-up of junior with a bulging mouthful of food. However, few of these pictures ever settled with any degree of permanence in the family album.

Soon friend husband, thoroughly entangled in the intricacies of film and f/stop, joined the local shutterbugs' Kamera Klix Klub and discovered "Quality." Thoughtfully he would march past the monthly display of prints, listening to the chin-stroking male critics as they issued high-sounding judgments on gradation of tone, S-line composition, mood quality, sepia toning, and matte surface. He went for this in a big 16x20 way and soon his new enlarger was crowding your electric mixer in the kitchen-turned-darkroom. His indelible "soup" shouldered the Heinz and Campbells off the shelves and when he spoke of buying a new washer and dryer, you knew he didn't mean the kind you really needed.

It wasn't until he carried off the blue ribbon at the yearly salon show with a picture of a bum asleep on a park bench with a hole in his shoe (or something equally impersonal) that he really arrived as a Photographer.

Several months later while cleaning out the hall closet to make room for the new projector and screen you find junior's first pair of roller skates (got a snapshot of this?), daughter's outgrown ballet costume (no snapshot?), and baby's discarded stroller (too late now).

Well, it's great to have a real photog-

rapher in the house. Now maybe you can persuade him to take a picture of the children—just something simple to show how they've grown. It's been almost a year since he's looked down the nose of his camera at them. It seems, however, that his camera is loaded with color and he wants to shoot something spectacular like sunset over Lake Tonahawanna. To be fair though, you'll have to give him credit for getting the children into some of the color slides. Clad in bright red and standing backs to camera (papa is remembering his composition), there are the kids pointing out a lake, a mountain, or the Grand Canyon. But you can't paste a color slide in that photograph album.

Ladies, let's face it—this will probably go on for years. Has he gone through the flashbulb stage yet? Brace yourself, the stroboscopic flash is next unless the photography fad swings to available light, which involves a newer, faster, more expensive lens. There are the unexplored fields of stereo-realism, 3D, and movies. New, improved, and even more complicated cameras keep appearing on the market to spark any lagging interests.

What is the solution? How are you going to get those "record shots," as your husband calls them? Next time you shop, pass up the steak and buy hamburger or decide against the stunning hat you saw. With the money you save approach the nearest photographic dealer and ask the clerk for a sturdy, simple, inexpensive camera. You can get one for as little as three dollars or if you eat hamburger for another week, seventeen dollars will buy a better camera. Also buy a roll of film. Go home, read the camera's instructions, insert the film, call the children outside, and then do as your mother and mine did. Glance over your shoulder to see that the sun is in the right position and click the shutter. When you've exposed the roll take it to the drug store for developing and printing. Don't let your husband develop it.

This will take a great deal of strength on your part. Be prepared for snide remarks from the No. 1 photographer of the house, the "this will kill you" routine when he shows his friends the pictures you've taken. On the other hand, don't be swayed by lectures on "What Beginning Photographers Should Know" delivered by a well-meaning mate who would like to wean you away from the simplicity of your camera and introduce you to his own jazzed-up film eater. Just keep your camera handy on a kitchen shelf or in a dresser drawer and when the occasion arises, take it out of its box (no fancy gadget bag), put the sun over your shoulder, and snap, snap, snap away.—

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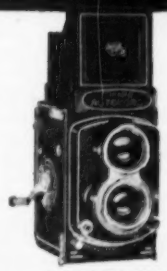

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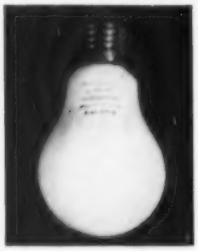
•

Here's one of the more ingenious viewing devices we've come across. Though only about two-inches square, it carries inside its body up to 20 cardboard-mounted slides—ideal for salesmen, tourists, etc. The lens gives a magnified pic-

ture with a surprising degree of stereoscopic effect; it has a groundglass diffusion screen, and the body is a rigid maroon colored plastic. The Paterson slide viewer and container can be had for $2.25 from any London retail shop mentioned in "Market Briefs." (Duty, if any, about 85 cents.)

•

Most home-darkroom workers know that the ordinary household light bulb isn't entirely suitable for enlarging—the light must be bright but even, and moderately diffuse without excessive heat. Philips Electrical have produced a series of "Photocrescenta" lamps of a new two-ply opal glass (not merely silica-



sprayed), giving absolutely even illumination, with a high-efficiency filament. A 75-watt Photocrescenta gives three times the printing speed of a 100-watt household lamp. Color temperature is 3,000 K, voltage 110, and base medium-screw. The 75-watt size is 99 cents; 150-watt size $1.12, available from any London dealer mentioned here. (Duty about 35 cents for the 150-watt size.)

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You can minimize cassette-loading problems and also the worry about negative scratches by using the 3-piece all-metal cassette offered in London by Wallace Heaton's, the city's biggest dealers. This cassette is self-opening and can be re-used indefinitely. It suits any camera with a pull-up rewind knob—Akarelle; Baldina; Contina; Edixa I, II, and Reflex; Iloca Quick and Rapid; Retina I, II, IIA, IIC; Retinette; Vito I, II, III; Silette; Memo, etc. Costs only $4.85 postpaid. (Duty, about $1.10), from Wallace Heaton Ltd., 127 New Bond Street, London, who

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With the Ilford Water Circulating Attachment you can convert any tray or bowl into an efficient print or film washer. A chrome-plated brass tube, with one end flattened, clamps onto the side of the tray; the other end of the tube is ribbed so that a hose connection from the faucet will grip the device firmly. When you connect the hose and turn on the water, the flattened end provides a jet

beneath the water surface which keeps prints circulating. Cost of this item is $1.30, from Ilford Limited, Ilford, London, England, or any London dealer mentioned here. (Duty, about 50 cents.)

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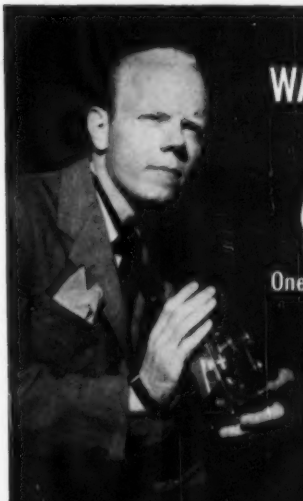
You can sit back and enjoy your color transparencies in comfort with the Kindermann Table Viewer, marketed by Dolland & Aitchison, 28 Old Bond Street, London. It makes viewing easy with its large lens (no need to peer closely) and its simple track for inserting slides. Just press the lever and the slide changes. A-C operated, you can use a lamp of the wattage desired. Available for $11.70 (without lamp) for 2 x 2 slides; for 2¾-square slides, it's $13.90. Strip-film carriers are also available, for $3.65 and $4.64 respectively. (Duty: viewers, about $3.40 and $4.00; carriers, about $1.)

NOTE: In this section, the British Edition of POPULAR PHOTOGRAPHY *gives you a first-hand report about new photographic equipment and materials offered in England—the world's second-biggest photographic marketplace. American readers now have a chance to browse here and if interested to buy—either directly from the sources mentioned or through American distribution channels wherever they have been established. U.S. Customs duties are not charged on items valued at less than $1. For items valued higher, the approximate amount you'll be asked to pay will be indicated at the end of the product. Nor are customs duties applicable to gifts sent to the United States having a value of $10 or less.*



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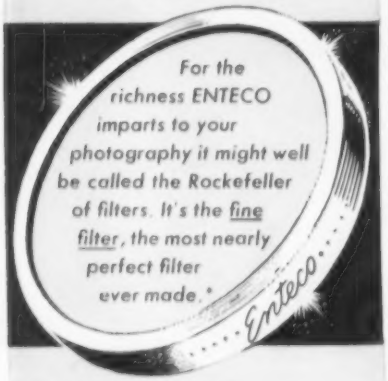

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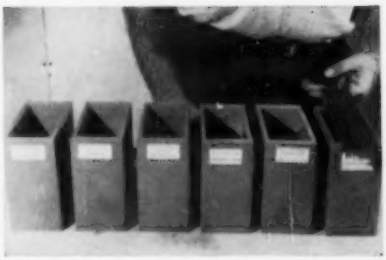
PHOTO TIPS—
SHORT CUTS TO BETTER PICTURES

Polaroid Viewing Filter

Adjusting contrasts of indoor lighting and deciding when fill-in flash is needed outdoors are functions of the standard blue viewing filter. A substitute can be made from cut-apart halves of the spectacles with which one views 3-dimensional movies. Attach the halves at their edges with an office-type aluminum rivet. At closed position the filter is quite dark but it lightens progressively when the halves are swung apart.—*Ken Murray, Colon, Mich.*

Tanks for Color Processing



Waste of expensive color-processing solutions can be minimized by making a set of wooden tanks 5½" deep, 2⅜" wide, and 5¼" long. After joining the sides the tanks are sealed with acid-resistant paint. They hold a quart and permit processing 8 films at once in hangers up to 4x5. For added economy buy 2-qt processing kits and mix half of contents at a time. Commercial tanks require 2 qts to fill to usable level.—*Louis Hochman, Sherman Oaks, California.*

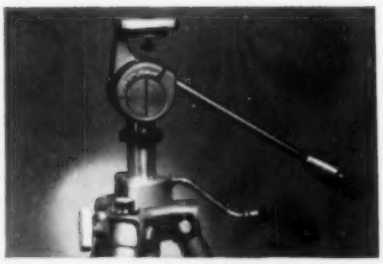
Small Filters for Big Lenses

Filters for telephoto or other lenses of greater-than-usual front diameters are quite expensive but you can mount smaller filters behind the lensboard, thus: Buy an adapter ring big enough to cover the opening. The flanges which normally would grip the lens barrel are bent at right angles to the retaining ring and fastened to the lensboard with small wood screws. Series VII or VIII adapters handle most lenses.—*Robert E. Wiles, Springfield, Mass.*

Simple Tripod Extension

A tripod extension for camera or clamp-on light is easily constructed from a side-extension flashgun bracket, a wooden dowel of the required length, and a camera-retaining screw and flange from a camera field case. The flange is drilled and attached by small screws to one end of the dowel. This is passed through the flashgun holder of the bracket, whose clamping screw holds the dowel at the desired height.—*G. C. Close, Hawthorne, California.*

Level Checks Tripod Placement



A circular spirit level, attached to an elevator tripod, makes it easy to true up placement of the tripod legs for correct vertical and horizontal perspective. Before cementing the level onto the tripod extend its center column and set it truly upright with a plumb bob. Then check the level and shim a side up if necessary, then cement in place. File an index mark on the tilting head to indicate horizontal position.—*Ben Quan, Ottawa, Canada.*

Why not send in your ideas for better picture-making and darkroom aids? We will pay $10 for each photographically illustrated Tip accepted—$5 if not illustrated. Material must be original and not previously published.

A SPECIAL SECTION

STORY OF THE GERMAN PHOTO INDUSTRY

PHOTOKINA—

Focal point of photographic progress in Germany

THIS year again the eyes of the photographic world will be turned toward Cologne, Germany, the home city of *photokina*, the International Photo and Cinema Exhibition. The big show opens on September 29 and runs through October 7, displaying to the public all the industry's new products for 1957. Once more, several hundred firms will join forces to impress the camera world with their past performance and their progress. The trade exposition will be supplemented by educational and cultural shows emphasizing the applications of photography in science, art, and recreation. For nine days, Cologne will be the center of the photographic universe, particularly proud and happy to welcome as many Americans as find it possible to come to Europe in the fall.

How does Germany merit the distinction of playing host to this unique exhibition? Photography is a French invention by Daguerre; improved by the positive-negative process of the Englishman Fox Talbot; brought to its fruition by the American George Eastman and his slogan, "You press the button, we do the rest." Yet Germany's name has been associated with photography for decades. There are two reasons for this: tradition, precision, and progress have hallmarked its myriad photographic products; and the art of picture-taking itself has found new dimensions in Germany, especially in the direction of the documentary and the journalistic.

Germany's part in the history of photography has never been widely proclaimed. But its quiet, steady contribution toward improvement and perfection have earned it a place in photography's hall of fame alongside France, Britain, and the United States.

An early beginning

The historical lineage can be traced back to the Middle Ages. It was Albertus Magnus, thirteenth century Dominican monk, who first called attention to the blackening of silver salts; to this day it is the basic chemical reaction involved in the making of sensitized paper and film. Many more Germans made contributions; here are just a few. Johann Heinrich Schulze discovered as early as 1725 that silver salts are sensitive to light, and he was the first to devise a means of copying based on this discovery. In the nineteenth century, Hermann Wilhelm Vogel discovered optical sensitization, which was to assume primary importance for proper tonal rendition in black-and-white and color. A few years later, Momme Andresen introduced Rodinal developer, a formula upon which many later developers were based. About 1900, Henricus Lüppo-Cramer invented desensitization; and in 1903 Adolf Miethe and Arthur Traube discovered isocyanine dyes and introduced them into photographic practice. They are of special importance for color sensitization, and paved the way for modern panchromatic materials. In 1912, Dr. Rudolf Fischer took out basic patents for the subtractive color process, using integral tripack film and paper. This method was later improved upon by the work of Dr. Gustav Wilmans, resulting in Agfacolor film. So there has been a steady stream of experience and fresh thought pouring into the progress of photochemistry from Germany.

But what really gave Germany its photographic reputation were its cameras and lenses. It is interesting to note that Peter Wilhelm Friedrich Voigtländer produced the first Daguerreotype camera made entirely of metal, in tubular form, only a year after the invention of photography itself, in 1840. The production of cameras, lenses, and shutters has since become a German specialty, and many of the country's world-renowned firms had their origins in the last century. Dr. Carl Schleussner, whose business in Frankfurt am Main dates from 1830, supplied raw materials for the wet collodion process in 1860; C. A. Steinheil began producing lenses in Munich in 1837; Carl Zeiss, founded in Jena (now also at Oberkochen), produced lenses beginning in 1846; Zeiss-Ikon (founded in Dresden, now also in Stuttgart and Kiel), traces its origin to Richard Hüt-

tig's camera workshop in Berlin in 1862; Ernst Leitz of Wetzlar, was founded by Carl Keller and taken over by the owner whose name it still bears in 1869; Agfa *(Aktiengesellschaft für Anilinfabrikation)* was established in 1867 and began production of photographic developers in 1889.

There is no merit in simply being old. But the German photographic industry has continually rejuvenated itself, profiting by its experience, venturing always forward. The greatest chapter in its development opened after World War I. In spite of the confiscation of many patents, and the losses resulting from economic collapse, the industry made a remarkable recovery. Manufacturers had to develop new products and look for new markets; large firms brought handcrafts into mass production; new inventions were eagerly exploited; and the industry publicized photography as it never had before.

Two pace-setters

There were two landmarks in camera development: the miniature and the twin-lens reflex. The prototype of the miniature was the Leica, designed by Oscar Barnack, first put on the market in 1924. And the first practical twin-lens reflex was the Rolleiflex, designed by Reinhold Heidecke, first sold in 1928. From 1920 to 1930 the boom was going strong for both, and they helped enlarge and consolidate the whole German industry. Soon it became common knowledge on every continent that German cameras and sensitized materials were of top quality.

But Germany was not just selling photographic merchandise to the world. At the same time it was giving a vital incentive to the making and using of pictures. This prosperous period was marked by several developments that have earned worldwide fame and influenced photographers everywhere. The Bauhaus, famous art center in Dessau, began teaching photography as a means of artistic expression. Posters, book jackets, and illustrations were created by photography and photomontage with daring freshness. The style, now refined and perfected, is in common use today. Dr. Paul Wolff, pioneer in miniature photography, liberated picture-taking from stuffiness, and was the first to get life and action into camera work. Dr. Erich Salomon was the first candid photographer, and may justly be called the father of modern photojournalism.

All these developments were encouraged by the editors of the famous publishing house of Ullstein, whose publications ran into many millions of copies. That publisher's indelible influence has yet to be thoroughly studied and evaluated. The years before World War II were filled with progress in photographic equipment, and here too Germany took the lead. It offered an unmatched variety of high-grade cameras and lenses, for all uses and all incomes. It produced excellent films, papers, and chemicals. The world was grateful to Germany for providing top-quality goods as well as new directions for the art of photography.

A decade of new life

The catastrophe of World War II was tremendous. But recovery was, in the same degree, phenomenal. Anyone who saw Germany at the end of the war would have doubted that the country could ever again take its place as a producer of any goods for export, particularly not in the demanding, precision field of photographic equipment. But the miracle happened. Yet it was no miracle; it was sheer hard work. Once more the German industry is healthy, stable, and successful. Three things helped: 1. The revival of the *Verband der deutschen photographischen Industrie e.V.* (Association of the German Photographic Industry) under the intelligent and energetic leadership of its president, Dr. Bruno Uhl. The Association celebrated its fiftieth anniversary in May, 1954. 2. The establishment of the *Gesellschaft zur Förderung der Photographie* (Society for the Advancement of Photography, in Frankfurt), an organization financed jointly and voluntarily by industry and dealers. It has created a center to supply the press with articles on photography and picture-taking, and it carries on a general advertising campaign for the benefit of photography in general, as well as other promotional activities. 3. The establishment of *photokina*, the International Photo and Cine Exhibition in Cologne, which opened for the first time in 1950 and showed German photo products and their applications. From 1951 onward, *photokina* was truly international both in its trade fair and its cultural aspects. Last year it covered twice as much area as in its first year, and the number of visitors soared from 74,000 in 1950 to more than 176,000 in 1954. Part of the show's success is due to the fact that it has invited participation by manufacturers in all countries, and has shown the work of photographers around the world. The broad scope of the exhibition makes it of interest to the general public.

An eye for the future

Guiding spirit of *photokina* is L. Fritz Gruber, "Germany's Ambassador of Photography," who is well-known outside his own country through magazine articles and books. He considers himself not simply an administrator for the German industry, but a trustee for everything that is new and good in photography everywhere. He is particularly proud of having initiated the Youth Photo Contest at *photokina*, a promising sign for photography's future. From modest beginnings, this contest has grown enormously, and the German President, Theodore Heuss, personally presented scrolls and honor plaques to the winners. The youngest winner was a shy girl of 13. The photographic press was quick to realize the unique value of this show. After the 1954 *photokina* the winning pictures toured 13 German towns. The organizing committee of the Youth Contest was composed mostly of youngsters, and they have since become an independent body, working not only for bigger and better competitions, but for the advancement of young people's interest in photography, and educational assistance. The Youth Contest might truly be called a highlight of *photokina*—except that everything at *photokina* is a highlight!

It is just a few months until the 1956 *photokina*, larger and better than the last one. Again the German photographic industry will demonstrate its vitality, inventiveness, and quality. Everything that is new for 1957 will be there. Will you?

for *Color* or monochrome

Automatic
ROLLEIFLEX f:3.5

Automatic
ROLLEIFLEX f:2.8

ROLLEICORD f:3.5

Automatic Loading

simply insert the film, close the back and swing the crank. You're all ready for your first shot.

Automatic Shooting

a flip of the crank and you automatically, *instantly*, transport the film and cock the shutter . . . ready for the next shott

Automatic Parallax Compensation

moving mask beneath ground glass automatically shows exact area covered, at all distances!

All-level viewing and composing

Rollei's versatile hood converts instantly from conventional ground glass viewing to direct eye-level viewing.

Rollei leads the world over

no camera compares in versatility, convenience features, and above all, in picture quality

Why is it Rollei seems to stand apart from all other cameras . . . that it's the *standard* of *so many* professionals, news photographers, travellers and most critical amateurs . . . that Rollei pictures are so predominant in publications throughout the world?

Get your hands on a Rollei and you'll have the answer. Rollei does far more . . . does everything *quicker, easier, better* . . . than any other camera.

In black and white, for example, where negative size is of utmost importance, Rollei's large 2¼" x 2¼" negatives permit enlargements of unparalleled definition, preserving even the tiniest details.

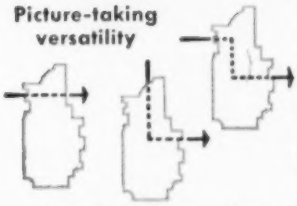
For color, Rollei's unexcelled optical system, plus its unrivalled versatility in negative size, gives you the widest latitude. For 35 mm projection in 2" x 2" mounts, simply attach the 35 mm film adapter. For the new, widely accepted 38 x 38 mm transparancies in 2" x 2" mounts, simply insert the Super-Slide masks. And for enlargements or commercial reproduction, the standard 2¼" x 2¼" negative size is ideal.

Add Rollei's many exclusive convenience features, its precise ground glass viewing and composing . . . its unequalled craftsmanship . . . and you come to only one decision — you'll get far more satisfaction and *value* from a Rollei, than from any other camera.

FRANKE & HEIDECKE

Braunschweig (West Germany)

Picture-taking versatility



dramatic worms-eye views, high angle shots, pictures from any angle are easy to make with versatile Rollei.

Close-up work

for close-ups even to 12 in. Rollei is operated *normally* using only the Rolleinar-Rolleipar lens attachment.

120 or 35 mm film

to convert Rollei from 2¼" x 2¼" size to 35 mm film, black and white or color, just insert the Rolleikin adapter.

38 x 38 mm transparencies

to get super-size 38 x 38 mm transparencies, in 2 x 2 mounts, simply slip in the Super-Slide masks.

The Leica — pioneer in 35-mm

GOETHE may have been responsible in his time for glamorizing Wetzlar, for he lived and worked in this picturesque market town and immortalized some of its people in his writings. In this century, however, there is an entirely different reason why a still not-too-large town, with its gabled roofs and half-timbered houses, is surprisingly well known all over the world.

For out of the wide, green-sloped valley dotted with small houses rises a huge complex of tall, clean-cut buildings. A big neon sign topping a square tower proclaims to the world the name of Ernst Leitz.

What accounts for the almost legendary fame associated with the name of Leitz? Part of the answer unfolds when you approach the huge industrial fortress formed by imposing nine-story buildings and look for a visitors' entrance. Townspeople direct you to a medieval-looking gate built of rough-hewn stone. After some search, you discover the name plaque of the firm on an adjoining Victorian-style home-and-office building that is dwarfed by the surrounding factories. This is where visitors are received and where the present owners and directors of the firm still reside. From here you are led through a maze of creaky, winding corridors until you find yourself in the factory proper.

You are not allowed to forget this introduction to a tradition that is at once modest and proud. For it is the marriage of hand craftsmanship and modern machinery that explains the success of Ernst Leitz—and of his famous Leica camera.

The most climactic chapter of the Leica story was written in 1924. At that time the firm had been in existence 75 years. Its force of nearly 1,000 workers manufactured microscopes and similar optical equipment, but economic conditions of the post-World War I period posed a serious threat to the business. The firm needed new products to provide employment for its workers, many of whom carried to the second and third generation a tradition of fine optical craftsmanship.

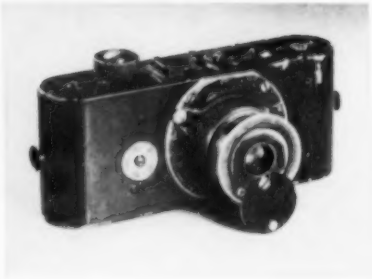
The product finally chosen not only saved the firm, but within a few years had captured the imagination of the world. In 1924, however, it was only the tenacity of Ernst Leitz—son of the founder of the firm—that led to the production of the first 500 Leica cameras. The following year they were offered at the Leipzig Fair.

How the camera went on from there to a dominant position in German and world photography is well known. There is a less-known fact, however, that deserves mention. The sturdy miniature camera—so different in conception from others of the period—was not a brand-new invention. Its creator, Oskar Barnack, had built the first prototype around 1912 as an exposure checker for motion-picture cameras. That's why he used standard 35-mm movie film in his miniature still camera; it was designed to make test exposures of movie sets.

And one other fact is remarkable. The first Leica—built by a firm of microscope makers—was a precision instrument down to the last detail.

The appearance of the Leica as a commercial product revolutionized the mechanics of picture taking and created a whole new school of photography. By making possible a more dynamic way of catching movement and unposed life, it profoundly influenced amateur snapshooting as well as the journalistic craft of telling stories by means of pictures.

That the Leica has been able to hold so much of the market it created can be traced to the fact that Leitz craftsmen have continuously improved their product and added to its line of accessories. The Leica has remained a prestige camera, renowned both for quality and simplicity of operation. The casual snapshooter who clicks away happily on a Sunday stroll enjoys the advantages of a well-thought-out mechanism in which all parts interlock smoothly. The professional can add to the same camera an impressive range of accessories to adapt it to specialized uses.



Prototype of Leica, built in 1913, stemmed from exposure checker that took still pictures on 35-mm movie film.

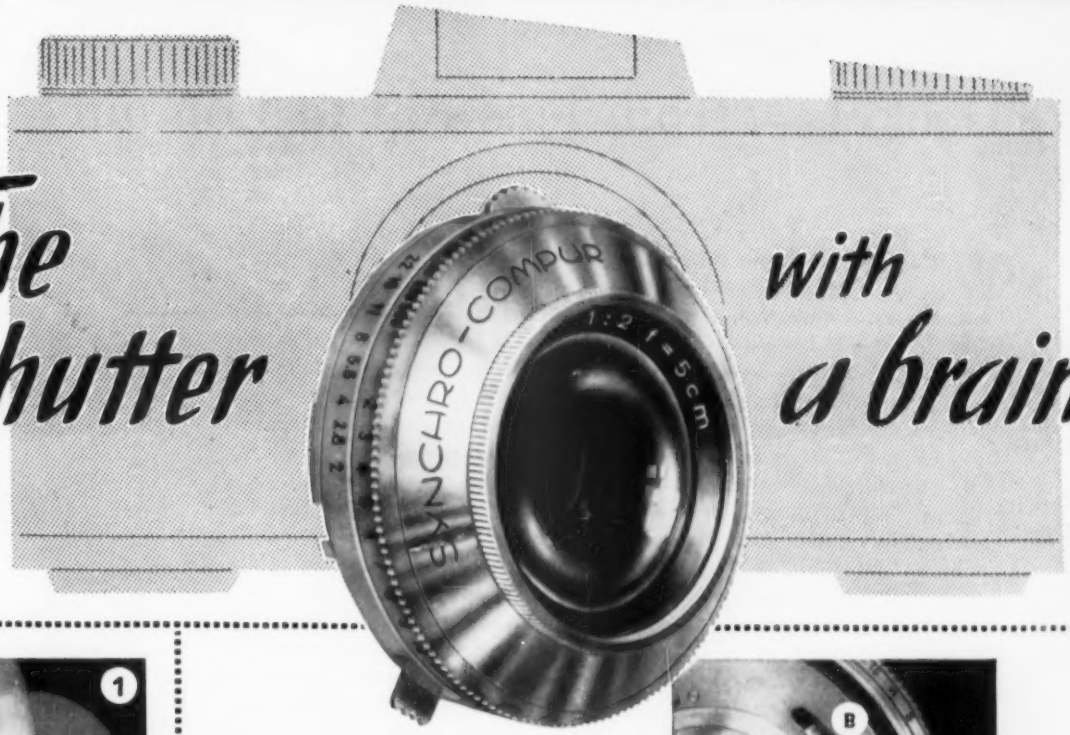
The most modern of all Leica's miniatures is the M 3, first shown to the public in 1954. Aside from a host of other features, it introduced "ranging vision"—an ingenious combination of built-in rangefinder and fully automatic bright-line viewfinder. In this case "automatic" means that whichever of the interchangeable Leica lenses you hitch to the camera (by means of a bayonet fitting), the field frame in the rangefinder-viewfinder will be changed to its own particular field of view. You don't have to adjust or allow for lens differences.

The highly developed Leica III f has been for years the most popular model with amateurs and professionals alike. One of the main reasons is that the basic camera can be expanded to the most specialized types of work by the addition of matched accessories.

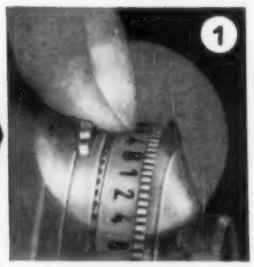
Model II f is less expensive because it lacks shutter speeds slower than 1/25 and built-in delayed action. The I f is the inexpensive basic outfit—minus rangefinder. However it can be converted into the equivalent of a II f or III f.

Leitz continues to produce large quantities of high-quality microscopes and other scientific apparatus, as well as enlargers and projectors of really remarkable light intensity. The Leitz people were the first to bring out an enlarger with automatic focusing.

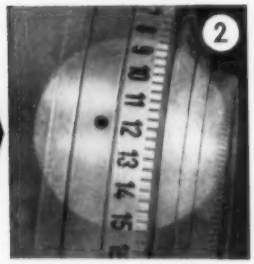
The shutter with a brain



PUSH-BACK



SET LIGHT-VALUE



SPEED AND F-STOP COUPLED

M, X AND SELF-TIMER

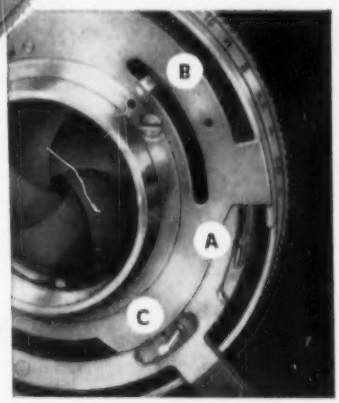
Formerly, correct exposure depended on the proper selection among numerous possible combinations or pairs of shutter speeds and f-stop settings.

Now, you need only determine the **light value** which can be directly read from many up-to-date exposure meters.

Then you use one finger to push back the light value setting ring ①, and bring the red LVS dot opposite the red light value number ②. This gives you the correct setting for many combinations of shutter speeds and f-stops.

Where your subject requires a different shutter speed, you will **automatically** obtain the proper f-stop setting. If you change the f-stop, you will **automatically** obtain the correct shutter speed. This is possible because the shutter speed and f-stop setting rings are coupled together, the result being that you can read both values with a **single glance** from a **single index mark** ③.

This „shutter with a brain" is fully synchronized within a range of 1 sec. to 1/500 sec. for **M** (flash bulb) exposures and for **X** (electronic flash) exposures. The green lever, when set at **V** (selftimer), will **automatically** return to its **X** position after the picture has been taken, so you need not take care to return it ④.



The flash contact, the cocking lever and the shutter release have been moved out of the way. The contact lug of the flash synchronizer (**A**), the cocking shaft (**B**) and the release shaft (**C**) are concealed within the camera body and are operated from within.

This shutter

for high-quality cameras is

Made in Germany

SYNCHRO-COMPUR *with LVS*

FRIEDRICH DECKEL MUNICH

Deckel — from lens cap to Compur

WHICH came first—the chicken or the egg? At least three thousand German workers could find an answer to that question in the history of their firm. In their case, the answer would be *egg*—though they'd call it something else, like *Compound*, or *Compur*.

For there is a curious story—one of many such, in fact—in the rise of Friedrich Wilhelm Deckel's company. The watch-like camera shutters turned out by its main plant in Munich required intricately precise machinery. When the need for large-scale production arose some years ago, the firm decided to build its own engraving, milling, and grinding machines so it could maintain the quality of its shutters while turning them out in larger quantities. Other manufacturers soon started to look admiringly at the production tools. Hence, while Deckel still supplies hundreds of thousands of Compur shutters to the camera industry, it carries on an equally important business in the manufacture and sale of highly specialized machines.

This is one of several odd facts in the background of the Compur shutter, a piece of camera equipment that most photographers esteem very highly—and tend to take for granted.

If being taken for granted is a fault, the product itself—or at least its inventor—must accept the blame. For there is nothing outwardly spectacular in the slow, steady rise of the Compur or its adoption as the single high-precision component common to so many different camera models.

In the late 1890's, while Friedrich Deckel was operating a small machine shop in Munich, he began to think seriously of inventing a better light trap. In the course of ten years of wandering through many countries, one experience had impressed him deeply: for two years he had worked under Zeiss' famous Ernst Abbé.

Foreseeing the rise of photography as a hobby and a tool of science, Deckel realized that improved shutters would be badly needed in years to come. Working with Christian Bruns at about the turn of the Century, he developed a between-the-lens shutter. Though it wasn't the first of its type, the Deckel-Bruns unit introduced two important improvements: it sliced time into intervals from 1 second down to 1/250 second; and at any speed its "efficient opening interval" was much longer. Its high efficiency meant that the time needed for opening and closing the shutter blades was made much smaller in proportion to the time the blades were fully open.

Slow speeds on the original model were controlled by a leather friction brake, but this was soon replaced by a pneumatic brake system and the "compound" shutter was born. It was one of the first truly modern shutters, rivaling those of Rochester, New York's pioneers, Bausch & Lomb.

The next important step was the creation (in 1912) of the "Compur" shutter using cogwheels—that is, a watchworks system—to control slower speeds. Camera progress over the last few decades has been marked by other important improvements in the Compur shutter. In 1923 the Model V, with built-in self-release appeared on the market; soon the Compur Rapid made possible a speed of 1/500 second.

The war and its aftermath put a stop to civilian camera production. In 1943, just as the difficulties facing postwar production started to ease, founder Friedrich Deckel died. The firm has continued, however, and has since introduced two major improvements that make the Compur both more versatile and more foolproof.

A wave of enthusiasm for flash photography swept from America to Europe after the war, and the Deckel firm promptly adapted its shutters for flash synchronization. The X contact came first and was followed later by the X and M.

Deckel's latest innovation, based on a revolutionary "light-value scale," is designed to reduce the arithmetic of photography. For, aside from focusing, the two vital operations in picture-taking are the setting of speed and diaphragm opening. Both are functions of the shutter machinery.

Light-value scale of Synchro-Compur shutter is operated by clock-like mechanism seen in this interior view.

Speed and opening are, of course, interrelated. A small diaphragm opening requires a longer interval of exposure, and vice versa. Since the right combination of speed and opening depends on the amount of light reflected by the subject, it is obvious that a single figure should suffice to express the absolute value governing both shutter settings. By cross-coupling speed and diaphragm in the new Compur both are adjusted by one setting.

With the new system, you determine by guess or measurement the amount of light available. You then set the shutter to this absolute "light value" and the shutter does the rest.

In the process of creating the single-scale shutter, the Deckel engineers also reformed existing measurements. The new "Synchro-Compur Shutter with Light Value Scale" (LVS for short) shows shutter speeds on a linear scale; that is, they vary in ratio of 1 to 2 to 4 and so on. The *f*-stops are also spaced at equal distances, thus simplifying the use of intermediate openings and bringing a measure of logic and regularity into the whole system.

All of this is a far cry from the first "modern" shutters, but if you know German you won't be surprised that a man named Deckel pioneered so many steps. Translated into English, his name means "lens cap."

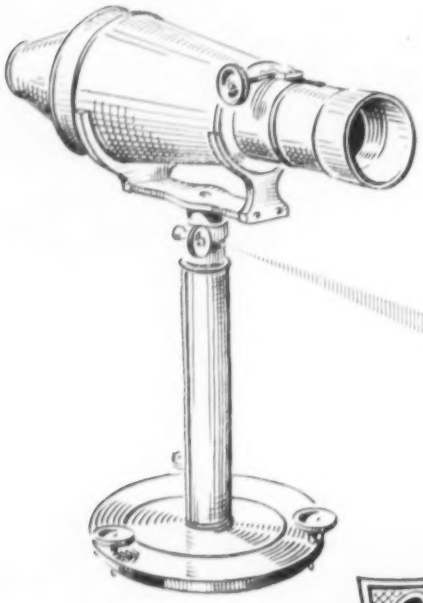
Agfa

In Photography's Advance Party

Countless inventions and discoveries – ahead of the main body of practice – have brought photography to its present stage of development. Agfa has always been in the advance party – preparing the way with research, pioneering achievements such as these:

- The discovery of the "gold effect" – bringing a four-fold increase in the speed of film.
- The Agfacolor-Negative-Positive process – making color photography as simple as black-and-white.
- Popular miniature camera models – used today by thousands of American amateur photographers.

Pioneers In The Past



The man who amazed the world with the first metal camera and the first mathematically computed lens was Peter W. F. Voigtländer. The year was 1840, one year after the invention of photography. With these achievements the work of his ancestors, begun in 1756, reached a new climax.

The first Voigtländer lens was an immediate sensation because it out-moded all existing conceptions of lens design and manufacture. This lens laid the groundwork for all lens manufacture from that time on. With the light speed of f/3.7, this Voigtländer lens was 15 times faster than the lenses used by Daguerre. Voigtländer thus enlarged the scope of photography to unlimited possibilities . . . and, for the first time, live subjects could be photographed with relatively short exposures.

Voigtländer because the lens is so good

Pioneers Today

In a never-ending stream of progress, the achievements of the world's oldest optical firm led to the internationally-known Voigtländer high-efficiency lenses, and the equally famous Voigtländer PROMINENT, VITESSA, VITO II a, and VITO B cameras.

During the course of years, Voigtländer mastered the many diverse problems of photographic design and manufacture. In turn, Voigtländer lenses and cameras master all problems of picture-taking.

Voigtländer's 200 years of experience culminate in cameras and lenses that are outstanding examples of the renowned German photographic industry. They are made with German accuracy and care . . . the finest under the sun.

PROMINENT

35 mm miniature camera, Synchro-Compur Shutter fully synchronized up to 1/500 sec. Rangefinder with Automatic Coincidence Compensation. **Range of new interchangeable high-efficiency lenses:** the ULTRON f/2, the NOKTON f/1.5, wideangle SKOPARON f/3.5, telephoto lens DYNARON f/4.5, telephoto lens TELOMAR f/5.5 in reflex housing

Simple to operate, reasonably priced, a camera to overcome all photographic problems!

Made in Western Germany

Service Stations all over the World

200 Years 1756 of Tradition 1956

Schleussner-Adox — films for many purposes

"YOUR *plates* are excellent in every respect!" This compliment was written on May 13, 1896 by the famous Dr. W. C. Roentgen, discoverer of X-ray photography. It was addressed to Herr Dr. Schleussner, founder of the Schleussner-Adox factory, who although only a year had passed since X-ray photography was discovered, already had X-ray-plate supplies available for use. Today, when the fourth generation of the Schleussners manages the enlarged works, with headquarters at Frankfort, letters still arrive daily from celebrities as well as from the average photographer. But instead of praising X-ray plates as they did in 1896, they praise Schleussner-Adox-*film*, and indeed, they have every reason for doing so.

Adox's thin layer film, KB 17, gives sharp, fine grain enlargements.

Exactly one year ago, in the May 1955 issue of POPULAR PHOTOGRAPHY, Bob Schwalberg wrote a detailed article about his testing experiences with Adox films. (Reprints may be obtained from E. Leitz, Inc., 468 Fourth Avenue, New York, N. Y., free of charge.) You may wish to know, in short, the main characteristics of the Adox film types:

KB series: For 35-mm cameras. Continuously improved over the last five years, checked and tested all over the world, they are relied upon by both professionals and amateurs. The following types are available:

KB-14: A 20 ASA thin-emulsion film, the resolving power of which exploits the crisp definition of modern high-quality lenses. By means of compensating development a wide range of contrasts can be controlled.

KB-17: A 32 ASA thin-emulsion film. Its needle-sharp definition and fine grain are combined with higher film speed than is provided by KB-14. Both Adox KB-14 and KB-17 have correct panchromatic sensitization and excellent anti-halation features.

KB-21: The Adox high-speed film. The speed of 80 ASA is constant, even with artificial light. This is due to its perfect panchromatic sensitization, since the emulsion as well as the sensitization have been especially matched.

For the roll-film camera: the thin, fine-grain emulsions of the KB films have also been in great demand for use in roll-film cameras. These are R-14, R-17, and R-21, with emulsions corresponding to similarly numbered KB films.

All of these films have a safety base and are distributed throughout the United States by E. Leitz, Inc.

In addition to producing films, Dr. Schleussner makes a number of other products which are not yet available in the United States. These include a reversal miniature film for obtaining direct black-and-white transparencies. There is an Adox R 18 P which is used by press photographers, and the higher speed Adox R 21 P. Both of these are fine-grain panchromatic films. There is also an R 21 P M which has a matte back for retouching purposes. This makes it a good choice for portrait photography. Adox has an orthochromatic film of high resolving power, brilliant gradation, and very fine grain, known as Adox R 18 O film; and, of course, there is also Adox sheet film for professional use.

In addition, Adox manufacturers developers for use with all of its films. There are also the following papers:

Adox Contact: This paper yields rich warm-brown to brown-black image tone, bright highlights, and deep, rich shadows; is insensitive to forced development; produces a mirror-like glaze, and has a wide tonal range.

Adox Portrait: With its speed, brilliant image tone, and balanced gradations, it is suited for general printing and enlarging work.

Adox Brom: Has marked uniformity of gradation and speed, and wide exposure and development latitude as well as freedom from fog.

Adox Portrait Rapid: Used mostly for those who want a neutral-brown to brown-black image tone for special effects in landscape, portrait, and advertising photography.

Schleussner also produces a number of cameras. The best known is the Golf 63-S, a 2¼x2¼ camera with the following features: bright telescopic viewfinder, body shutter release, double-exposure prevention with visual signal, shoe for accessories, depth-of-field scale and a special fixed-focus setting system. The Schleussner Golf 63-S camera is being supplied with a Pronto shutter and a built-in self-timer.

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8mm MOVIE CAMERA

Line up pointers in viewfinder — Bauer's built in lens-coupled exposure meter automatically sets lens aperture for perfect exposure while filming!

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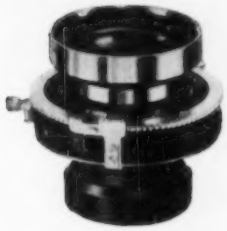

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	Covers	Angle (across diagonal at full opening)	Covers	Angle (at full opening)
47 mm	2¼ x 2¼	82°	2¼ x 3¼	95°
65 mm	2¼ x 3¼	76°	4 x 5	103°
90 mm	4 x 5	85°	5 x 7	102°
121 mm	5 x 7	85°	7 x 9	103°

Schneider lenses are available through your photo dealer, or write for literature.

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Also combining Schneider's air-spaced design with the new type glasses . . . increasing resolving power almost twice over entire picture area, with a substantial increase in contrast.

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Agfa—a phoenix in blue and orange

LOOKING northward along the Rhine from a high vantage point atop Cologne Cathedral, beyond the imposing fairground and exhibition halls of *photokina*, you can see an enormous complex of industrial buildings. It is the famous Bayer Works at Leverkusen, source of photographic materials and equipment which are known around the world under the name Agfa.

The name originated in 1897, when Dr. Momme Andresen's newly invented Rodinal developer was put on the market with the Agfa trademark. The line of photo products was steadily expanded over the years, augmented by developments like the introduction of the first anti-halation plates, the discovery of the "gold effect" which made high film speeds possible, and the substitution of non-inflammable material for the dangerously flammable X-ray film base which once created a storage hazard.

But Agfa's greatest fame was achieved with its color film. After long experimentation, Dr. Gustav Wilmanns and his co-workers perfected in 1936 a multilayer color negative-positive material—Agfacolor. In 1940 the first motion-picture Agfacolor appeared, and two years later the first large-format color prints were made by the process.

Before World War II, every dealer and every amateur photographer in the U. S. knew Agfa films and cameras, and respected their high quality. And this will doubtless be the case again in the near future. At present, however, the famous orange box with the blue diamond trademark is absent from American dealers' shelves.

Agfa was not spared in the cataclysm of the war and its aftermath. The Munich camera factory was sixty percent destroyed; the film works at Wolfen was lost to Russian control; the Berlin management of the whole operation had to be discontinued. The breaking up of the cartels (Agfa had been a part of I. G. Farben since 1925) completed the dismemberment of the firm. The Munich plant resumed production under U. S. direction, and the sensitized-paper factory at Leverkusen was able to resume operations as early as May 1945.

Out of the ashes: the new Agfa administrative office building in Leverkusen, near Cologne, on site of prewar printing-paper plant.

From these shattered fragments a new organization has arisen. On the site of the old paper plant at Leverkusen now stands one of the most modern film factories in Europe. The Munich camera factory has been reintegrated in the firm, and the two together now produce everything a photographer needs. The Agfa motto, "Everything photographic," is as valid as ever.

Agfa has always pioneered in the advancement of interest in photography and the broadening of its applications. Two decades ago, its publicity for "a 5-Mark box camera for 4 Marks" made picture-taking everybody's hobby in Germany. More recently, the firm has introduced the miniature Silette and the Clack camera, laboratory equipment like the Variomat, and the Copyrapid process which was invented by Agfa's distinguished woman chemist, Dr. Weyde. New films, Isopan FF 13/10° DIN and Isopan 23/10° DIN, were introduced in 1955, crowning Agfa's advancement in film technology, and the company's laboratory for basic research has established new standards in emulsion contour definition.

So once again, research, development, production, and merchandising are joined in a vast enterprise dedicated to serving the world of photography with superior equipment and materials. Ten years of unstinting labor by thousands of workers, from the research director to the lowest clerk-typist, have succeeded in restoring the Agfa name and the blue-and-orange trademark to a place of honor in the German photo industry. Agfa products are now sold and used in 132 countries.

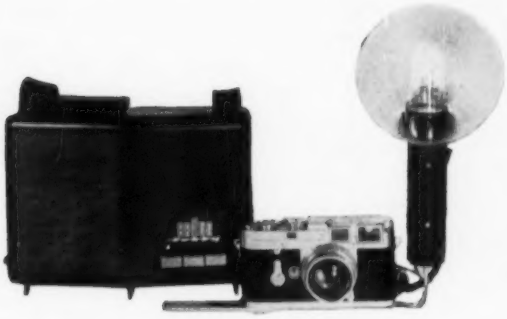
Soon, perhaps, the number will be 133. In the U. S., only those who have brought Agfa products back from Europe have been able to enjoy them. It is hoped and expected that the near future will see removal of the ban on Agfa goods, so that they may be bought everywhere in the U. S. as they were a few years ago. For photography is a universal language, a language in the service of peace and understanding. Agfa is glad to serve all those who use that language.

Newest Wonder Of The Pushbutton Age.

The Braun Hobby Automatic has the keys to your flash success. There's no need to fiddle or fuss with switches and plugs.

Key ◐ pushed — cuts battery to half power for closeups.
Key ∼ pushed — AC house current operation.
Key ∼◐ pushed simultaneously — cuts house current to half power.
Key ⊣▷⊢ pushed — set for recharging.

The Hobby packs a terrific light wallop of 105 watt-seconds. That's a guide number of 56 with Kodachrome, 90-100 with the new Anscochrome. The flash temperature of the Hobby matches daylight. No need for filters with daylight color film.



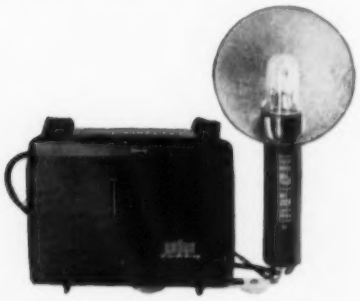
Unbreakable Head

You can step on it or drive your car over it. The beaded reflector, of vacuum-coated metal, produces non-harsh light. The head swivels to shoot light at a normal (50 degrees) or wide angle (70 degrees).

Coiled Cord

Saves time, temper and can't kink. The coil allows off-camera flash (up to 4 feet) for varied effects. Up to three additional light heads can be plugged in for studio-type lighting.

If you are a photographer who does not require the power and versatility of the Automatic, there's the Hobby Standard with the same reliability and simplicity at lower price. The Standard has an output of 60 watt-seconds, runs on house current, rechargeable wet-cell or drycells, weighs only 3.7 lbs. The guide number is 60 with Anscochrome and Ektachrome color film. You can forget your flash costs with a Hobby Standard.



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Car Lighter Cord For Charging

The photo reporter can charge up his light between assignments with this extra. Our strobe engineers thought of everything to make the Hobby the most versatile flash on the market.

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Franke & Heidecke—the story behind the

BY MODERN American standards, Braunschweig is a city of marked contrasts and paradoxes. The sight of workers going to and from their jobs on bicycles, creates an almost rustic impression. Yet these same workers include some of the world's most advanced mechanical craftsmen.

The people of this small, central-German city are sentimentally proud of the few 1,000-year-old houses that have survived ten centuries of wear and war. For these houses are the originals of the gingerbread-like structures pictured in so many volumes of fairy tales.

Factories as modern as tomorrow mingle here with remnants of an ancient heritage, and Braunschweigers are equally proud of the technically outstanding products that come from the city's workrooms and assembly lines. High on the list of internationally famous Braunschweig names is that of the Rolleiflex camera.

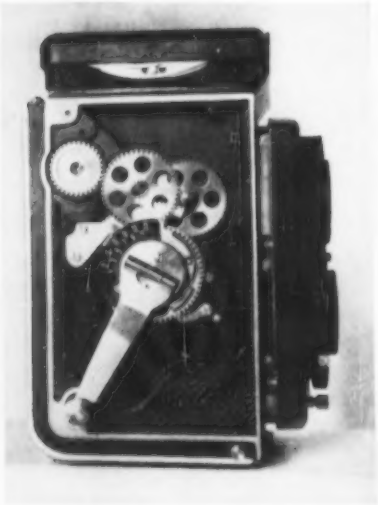
The Rolleiflex story begins in 1920 when Reinhold Heidecke combined his mechanical skill and knowledge of optics with the practical abilities of businessman, Paul Franke. The first years were devoted to manufacturing stereo equipment, and in 1929 the firm of Franke & Heidecke produced the first Rollei camera. The twin-lens design became an instant success.

In effect, the twin-lens-reflex mirror idea, embodied in the Rolleiflex and in the later Rolleicord, combines two cameras in one die-cast, squarish box. The two cameras—and all their adjustments—work as a single unit. The upper, or viewing camera produces an image on a viewing screen in the top of the camera.

Identical images—for viewing and taking—can be produced because two lenses are set in the same panel and are moved by the same focusing control. Since the relationship between the lower lens and film is always exactly the same as that between the upper lens and the viewing image, the picture a photographer sees will correspond in focus and framing to what the film "sees" at the same instant.

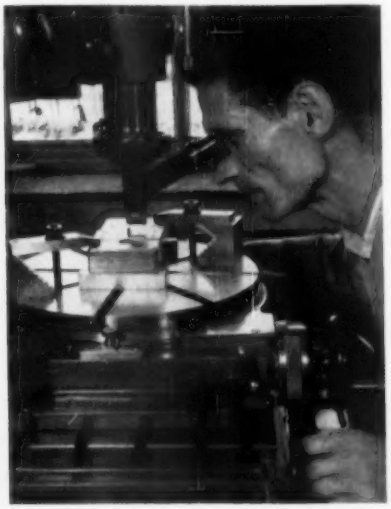
The original camera embodied a number of principles that have been followed in all later models. To create a camera with the smallest possible number of variable elements, designer Heidecke ruled out flip-flop mirrors and separate carriers for roll film. Even after a plate holder was added as an accessory later on, it was designed so the plate or sheet film would move forward into the fixed focal plane before exposure. This made it possible to convert the Rollei from a fast-operating roll-film camera into the most accurate kind of plate camera. Builders of accurate one-shot color cameras borrowed this principle, and for a time even used Rollei holders.

Since the first Rolleiflex was almost as simple as a camera of its type could be, later improvements have largely been limited to refining mechanical parts and adding new features made possible by technological advances. As early as 1937, Rollei introduced the only completely automatic roll - film winding mechanism. It is still an out-



Intricate gear-box of Rolleiflex automatic film transport and shutter-cocking device is shown in cut-away model.

In Franke & Heidecke's Braunschweig factory a worker fits a gear-mounting plate into a partially completed camera.



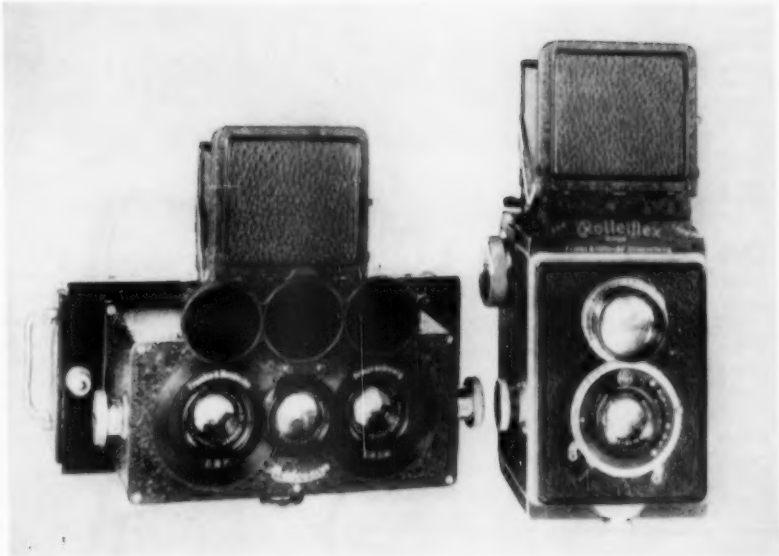
Here a tool plate is lined up at the drill-press works. One precision drill has the amazing tolerance of 1/2,000 mm.

making of a Rolleiflex

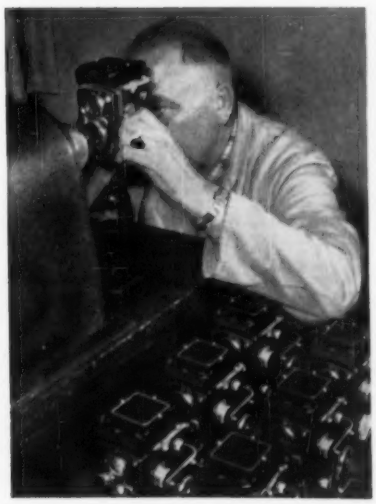
standing and identifiable Rollei feature. The firm was also first to use the fine Xenotar and Planar lenses, and the first to introduce the amplified light-value system of exposure control.

Though the Rollei is designed to achieve maximum flexibility with the simplest practical mechanism, many accessories that extend the range or usefulness of the camera can be used to good advantage. To maintain Rollei's standards of precision, Franke & Heidecke build these small but important aids to photography with the same care they lavish on the manufacture of the camera itself. The firm believes that unless optical accessories are made to the highest standards, they can overcome camera quality and degrade images formed by lenses on films. Rollei-made filters are double-coated by an exclusive method developed by the firm. Each unit is put through highly exacting quality and accuracy tests before it is released.

Most ideas for additions and improvements to the Rollei have come from within the firm. For the most part, as has been noted, they have consisted chiefly of company decisions to keep up to date by incorporating improvements in lenses, shutters, and other components as they have become available. Dr. Heidecke also carried on a vast correspondence for many years with Rollei users and dealers all over the world. From criticisms and suggestions made by such outside experts came several ideas that were later incorporated in Rolleiflex and Rolleicord cameras. The present junior member of the firm, Mr. Horst Franke, son of the late co-founder, has also gleaned ideas and user reactions from his own travels. He has followed the Rollei all over the world, and visits the United States often to talk over technical aspects of photography and camera manufacture with top experts in both fields.



The Heidoscope stereo reflex camera, left, preceded the Rolleiflex as the chief product of Franke & Heidecke. At right is an early model of the twin-lens Rollei.



Tester at collimator (optical testing bench) checks focus of viewing and taking lenses to see if they correspond.

Materials from which the Rollei is made are gathered together from many places. The leather that covers each camera, for example, comes from a goatlike creature that lives on the far-off slopes of the Himalayas.

Of equal interest to the scientifically minded is the fact that the factory maintains a special torture chamber in which it can artificially simulate the toughest physical and weather conditions a camera is likely to encounter anywhere on the face of the earth. The kind of testing that goes on here is more rigorous than would be needed for most cameras. Rolleis, however, have been outstanding "members" of countless explorations and geographic expeditions for many years, so they have to be made and tested to meet unusual conditions. Of the nearly one million Rolleis made to date, thousands have been close companions of adventurers, authors, journalists, scientists, and, of course, photographers the world over. It is probably fair to say that anyone who has ever glanced at an illustrated book or magazine has seen the work of the Rollei, since it accounts for a great proportion of all the pictures that appear today.

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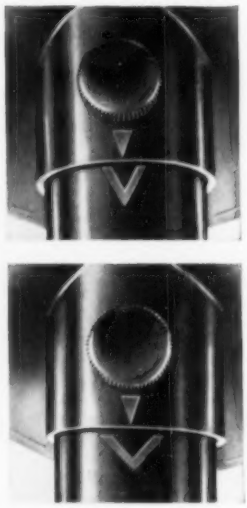
Braun—versatile, lightweight electronic flash

IN WEST GERMANY'S photographic industry, traditionally accustomed to "Professor" and "Herr Doktors," the Braun electronics company in Frankfort has earned a reputation as a group of go-getters. Less than four years ago, the Braun Hobby electronic-flash unit made its debut—today it is popular not only in Europe, but also throughout the rest of the world.

Although Braun has been in the electronics and electrical goods industry for thirty-five years, it was partly by chance that the Company entered the speedlight phase of the field. Erwin Braun and his engineer, Gerhard Lander, were at a photographic show looking at new equipment when they saw some electronic lighting equipment. When Braun asked if he might see the inside of the unit, the exhibitor replied that it wouldn't be worth while because he probably wouldn't understand it.

Erwin Braun studied opinions of many photographers before the newest Hobby units were designed.



Hobby flash head turns to give either normal or wide-angle beam of light.

Braun and Lander then retired to the nearest coffee shop; in a few minutes, the engineer had sketched a diagram of a rechargeable-battery electronic-flash unit—on the back of a cake menu, Braun figured costs. When the first Hobby was introduced to the market, its low price and high light-power were amazing to the European photographic world. Since that time, the Braun organization has been referred to in Germany as "the people who get up before breakfast."

In 1954, Braun introduced the Hobby 100. When the time arrived for designing additional models for 1956, before consulting his engineers Braun began questioning and talking to photographers. The opinions of more than 1000 amateurs and professionals in the United States and Europe were solicited and studied carefully. Only after their suggestions were correlated did Braun call in his electronics and design men. Then, off the drawing boards came the designs for the 1956 Braun Hobby Automatic and the Standard. Braun engineers claim that the 5-lb Automatic is the most versatile speedlight unit ever made; many of its features are incorporated in the 3.7-lb Standard, designed for low cost. The Hobby flash head can be turned to shoot a normal or a wide-angle beam of light—many camera fans use a wide-angle lens for indoor work. The Hobby light, which can be set to 50 or 70 degrees, matches the lens, covering the picture-taking area evenly and eliminating hot spots and dark fringes.

Braun engineers also have simplified the matter of shooting close-ups with electronic flash; one push button cuts the electrical charge to 50 percent of the 105-watt-second light-power, making it unnecessary to cover the reflector with handkerchief or other materials when making portraits or other close-up shots. All Hobby units have built-in selectors which permit firing or recharging on any kind of line from 110 to 250 volts a-c—a particular advantage in European or other countries where the electrical source differs in practically every hotel. This feature makes it possible to use the Hobby almost universally. The Braun organization has sales and service agencies in sixty foreign lands, and takes pride in its comprehensive policy of service.

Much ingenuity and experimentation went into the designing of an unbreakable plastic reflector and case for the Hobby; the reflector is metal-coated and the plastic, in addition to being climate-proof and jolt-proof, is a perfect insulator. One of the suggestions made to the Braun company by camera fans was that the flash be safe and shock-proof, in the event that it might get into the hands of a small child—the Hobby is doubly-insulated, and its inner works sealed.

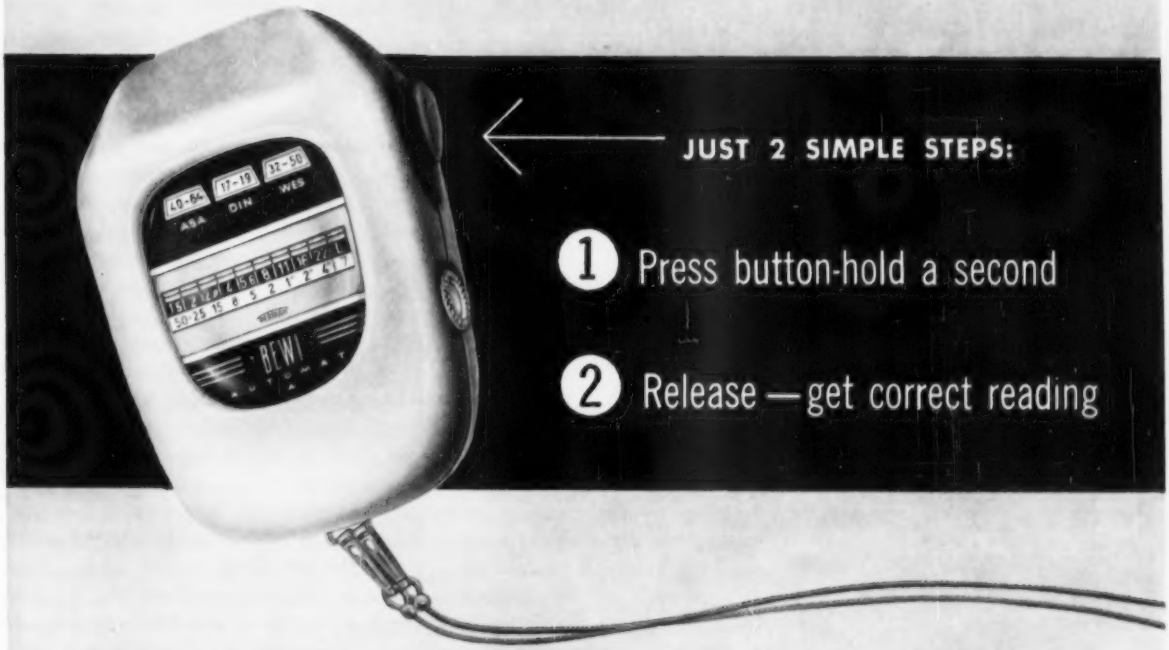
The heart of the speedlight unit is the condenser system which stores electricity to fire the tube, which is good for 50,000 flashes. The Hobby light approximates daylight at 5600 degrees Kelvin and requires no filter with daylight color film. The condensers were designed to provide maximum power and dependability with low leakage possibilities. A coiled cord allows off-camera flash up to four feet, and for portraits or other shots where lighting must be well-balanced, up to three extra heads can be plugged into the Hobby—and if you're traveling by car, there's a special cord that permits recharging the unit by plugging into the cigarette-lighter outlet.

IN MODERN AUTOMOBILES
it's power steering, power brakes
Automatic transmission

IN MODERN EXPOSURE METERS
it's *Automatic* push-button reading
for perfect pictures!

BEWI *Automat "A"*

AUTOMATIC EXPOSURE METER



JUST 2 SIMPLE STEPS:

1. Press button-hold a second
2. Release — get correct reading

Imagine it! Getting correct exposure as easy as steering a car! The exclusive BEWI "Automatic Calculator" automatically sets the shutter scale speed to the corresponding diaphragm scale so that exposure time and stop can be read off directly, immediately, correctly. No needles, no tables, no computations! *With his eyes shut tight*, the photographer can get the one correct reading for perfect exposure — automatically! The BEWI AUTOMAT "A", one of the most beautiful meters ever designed, can be used with all cameras, all films, all shutters, including the new Compur Light Value shutters. Direct readings for both reflected and incident light; lens openings, f/1.5 to f/22; speeds 1/1000th to 4 minutes. Only $29.50 with Incident Light Attachment, Neck Cord and Dustproof Plastic Box. Leather Case $2.95

WILLOUGHBYS, 110 West 32nd Street, New York 1, N. Y.

Carl Zeiss—a tradition in camera craft

JENA, is a town of medium size in Thuringia, a colorful part of Germany often called its "green heart." Among Jena's outstanding 19th Century citizens were Carl Zeiss, and a man who helped make Zeiss' name a camera byword throughout the world.

Ernst Abbe, who went into partnership with Zeiss 90 years ago, is still regarded as one of the outstanding physicists of his time. But his scientific genius accounts for only part of his fame. To Abbe belongs major credit for the great commercial success of the Zeiss enterprises. He was a master at transforming scientific findings into manufactured products and at designing products to fill real needs. Abbe had the gift of inspiring the people who worked under him, and he ultimately rewarded their faith by creating a new form of business organization—the industrial foundation.

In 1899, shortly after Zeiss' death, Abbe founded the Carl Zeiss Foundation. He transferred to it a huge fortune consisting of the laboratories and manufacturing plants bearing the name of Carl Zeiss, as well as his personal holdings in the Jena glass works of his friend, Otto Schott.

Behind Abbe's action was a revolutionary social idea: that the worker in a factory should not be dependent on the whim of his employer. He felt, on the contrary, that it was necessary to erect a barrier to protect workers against wilfulness on the part of the owners or managers of industry. Instead of leaving the form of this protection to the good will of future owners, he preferred to resort to law.

Zeiss Ikon Ermanox, one of the first production cameras to sport a high-speed lens, featured the f/1.8 Ernostar.

To carry out his idea, he gave the foundation a statute that created the general framework of the Zeiss and Schott enterprises. It required their profits to be used for social and scientific purposes and for the common good. It also spelled out in great detail the rights and obligations of the directors and employees of the Foundation. In the rights guaranteed to workers, Abbe's statute anticipated many industrial reforms of the next half century.

In the decades that followed, the Carl Zeiss Foundation and its cameras, lenses, and scientific apparatus gained international fame. Carl Zeiss became the biggest supplier of optical goods in the world. After World War II, however, Central Germany was occupied by the Red Army and the Foundation came very near to extinction. In 1946, about 94 percent of its machinery and equipment was dismantled and shipped to Russia.

Just before the Russians moved in to begin their dismantling operations, however, the U. S. Army had brought the top management of the Zeiss factories — the leading scientists, technicians, and executives — to Heidenheim, in the Western Zone.

This team of management-in-exile laid claim to all properties belonging to the Zeiss companies that were located in the free world. It also transferred the seat of the firm—and the Foundation—to Heidenheim. A new factory, erected in nearby Oberkochen, now employes over 4,000 people.

The rulers of the Soviet zone were not content with physical possession of the Jena works. They wanted also to profit from the prestige and good will associated with the name of Carl Zeiss. Claiming exclusive rights to all Zeiss trademarks, they brought suit against the Heidenheim Foundation. Several courts, both in the German Federal Republic and abroad, have since decided against the claim. As legal matters now stand, the Western world pretty much agrees that the name and trademarks of Carl Zeiss belong solely to the firm now located at Heidenheim—and not to the state factory at Jena. Needless to say, the Communist world has a different view.

When the Zeiss factory was being transferred and rebuilt in the West, high-class German cameras were in such great demand throughout the world that management decided to concentrate its first efforts on producing camera lenses. It seemed easiest to get this single type of product into quantity production in a relatively short time, and with it to reëstablish the Zeiss name in far-flung markets.

The photographic division of Zeiss, though eager to turn to new items, faced many difficulties getting into production. Shortages of trained workers and of specialized instruments and machinery limited the rate of output. Further limits were set by a company policy to market only those lenses that were at least equal to Jena's prewar standards. Computing and testing processes presented few serious problems, since the very scientists who had set up the systems at Jena were in charge of the same operations at the transplanted factory.

The modest production enforced by circumstances in this early postwar period proved to be a blessing in disguise. Starting virtually from scratch, Zeiss technicians were able to incorporate many scientific improvements and plan new production facilities to the latest and highest standards.

And while the first years of peace were spent in catching up and filling the huge backlog of demand for then-current lens types, it was possible, simultaneously, to lay the groundwork for the next stage. A vast amount of scientific work on lens design was refined and coödinated with a view to introducing improvements into the manufacturing process.

is born again in a new West German home

Advances in lenses and lens technology takes many forms. The general public is most likely to notice progress only when the number of lens elements is increased (for example, the Sonnar 85-mm *f*/2.0 and the Biogon 35-mm *f*/2.8 now have 7 elements), but other factors may be equally important.

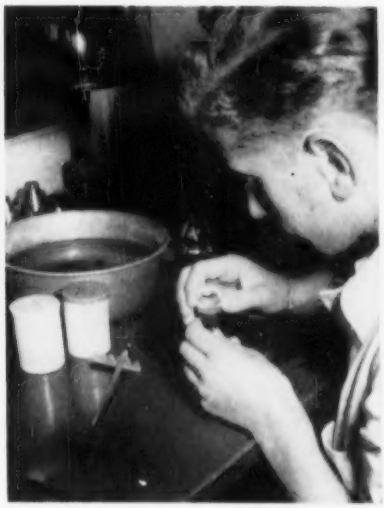
One such factor that has had very favoriable consequences has been a change in the specifications set by camera manufacturers. Before the war there was a great demand for "universal" lenses—that is, production-type lenses that could be used for different negative sizes. The more recent trend has been toward lenses computed for specific applications. This has made it possible for designers to concentrate on building lenses to meet specific requirements. They have been able, too, to eliminate much of the correction that is necessary on universal lenses. Newly developed optical glasses—especially those of high refraction value—made possible still further improvements. For example, the Tessar 80-mm *f*/2.8 now has a flatter field and less zonal aberration.

While older lens types were being improved, considerable development work was carried out on newer models and in 1953 the Topar 210-mm *f*/4.0 lens for 5x7 aerial cameras appeared. In it, deficiencies were reduced 60 percent below the theoretical "ultimate" in lens correction before the war.

The year 1954 brought the new Planar, a refinement of the "Gauss-type" lens first produced in the early 1890s. Earlier variations of the same basic type included the high-speed Biotar lenses brought out by Zeiss in the 1920s. The new 5-element Planar, with a speed of *f*/2.8, bears a clear resemblance to the classical Planar as well as to the earlier Topogan. The new model, however, has a flatter field, and its sperical and chromatic aberrations and coma have been corrected to a high degree. All of which results in exceptional definition and contrast.

Aside from the *f*/2.8 Planars (made in an 80-mm model for Rollieflex 2¼x2¼, and a 100-mm length for the Technika 2¼x3¼) there is also a wide-angle, 35-mm *f*/3.5 made for the 24x36-mm Contax. This last is noted for extremely sharp and brilliant pictures; it is surpassed by the 35-mm, *f*/2.8 Biogon only because of the latter's higher speed and exceptional brightness of screen illumination.

Theodor Huess, President of the German Federal Republic, behind bust of Abbe, greets new Oberkochen workers.



Young apprentices at Zeiss work their way up through many stages of lens production as they did a century ago.

At the same time it announced the new Planar, Zeiss brought out a new *f*/4.5 Biogon computed by Bertele. It has an angle of 90° and is supplied in 21-mm, 38-mm, and 53-mm focal lengths; these are designed, respectively, for film sizes of 24x36 mm, 2¼x2¼", and 2¼x3¼". In speed and illumination of field, the Biogons are said to surpass equivalent wide-angle lenses previously available to amateur and professional photographers.

The Sonnar lens, famous for the *f*/2.0 and *f*/1.5 models that helped make history in miniature photography, recently acquired new brothers of the same name. These are mostly 5-element lenses of longer focal length and computed for larger negatives (135-mm, *f*/3.5 for 2¼x2¼, and 180-mm *f*/4.8 for 2¼x3¼). The short barrel of the Sonnar is a distinct advantage with regard to shutter fitting and in overcoming vignetting.

The growing popularity of single-lens-reflex cameras has increased the need for lenses whose distance from the film plane is comparatively long in relation to focal length. (This less-than-ideal spacing is necessary in order to permit the mirror to move.) With its 60-mm *f*/5.6 Distagon, Zeiss has created a wide-angle (65°) lens for 2¼x2¼ negatives that has good correction although the distance from the film to the back element of the lens is much longer than the focal length.

And finally, it may be interesting to note that Zeiss has brought out a new Anamorphot for the projection of CinemaScope films. The principle—based on a cylindrical lens system—is well known. What is probably less well known is that the principle itself was discovered many decades ago by Ernst Abbe and his colleague, Dr. Rudolph. They also coined the name Anamorphot. In supplying movie theatres with wide-screen projection lenses, the present house of Zeiss offers a fitting memorial to its greatest pioneer.

Voigtlander—its first two centuries

A FEW months from now, leading personalities from all over the world will meet at Braunschweig, Germany, to celebrate the 200th anniversary of Voigtlander—an internationally famous camera firm that came into being long before the camera itself.

In 1756, Johann Christoph Voigtlander, who had earned the 18th Century title "Privileged Mechanicus," opened a small shop in Vienna and began producing fine scientific instruments. Voigtlander made all kinds of complicated and delicate quadrants, compasses, and microscopes, building the structural parts from wood, since the use of metal for such purposes was nearly unknown at the time. His great skill, precision, and reliability soon made his work famous—at least in the very specialized circles where the things he made so expertly could be put to use. Orders soon came in from all parts of Europe, and by the time of his death his shop had grown into a substantial, well-established plant of world-wide reputation.

Johann Christoph's work was carried on by his son, Johann Friedrich, who added the production of optical glasses and instruments to the original Voigtlander line. It was he who first manufactured binoculars to be used in place of hand telescopes. They caught on quickly and were closely associated with the man who created them. Up to the beginning of this century, theater binoculars in England were commonly called "Voigtlanders."

Peter Wilhelm Voigtlander, the son of Johann Friedrich, succeeded his father as head of the firm and turned it in still newer directions. Daguerre invented photography in 1839, and by the following year Voigtlander, together with the mathematician, Professor Petzval, had created the first scientifically computed photographic lens. It had a speed of *f*/3.7—a fantastic light aperture for the time and 16 times faster than the Daguerre lens.

Also in 1840, Voigtlander produced the first metal camera. It is now a rare collector's item, though perhaps not as rare as one might expect. Records show that 600 of these cameras had been manufactured and sold by 1842. Thus Peter Voigtlander played an important part in helping infant photography to catch on.

In the expansion that followed, the Voigtlander firm itself squeezed in its old Vienna quarters and in 1849 the owner moved it to Braunschweig, near Germany's Harz Mountains.

Ten years later the ten-thousandth Voigtlander lens came out of the German factory. This would hardly set a production record today, but for the mid-19th Century it marked a very high rate of output, and from then on production increased by leaps and bounds. Recognition also came fast. The Voigtlanders were raised to the nobility and the firm won many medals and awards in token of the improvements it introduced in the design and manufacture of lenses.

At the start of the new century the company brought out one of its most famous—and durable—items, the Heliar *f*/4.5. This first speedy anastigmat lens is still a popular portrait lens with thousands of professional photographers the world over.

Changes and improvements in lenses go hand in hand with changes in camera construction, and Voigtlander went increasingly into the business of making complete picture-taking assemblies. The growing popularity of photography created a demand for lighter, simpler cameras, and the firm made them available. Camera fans may recall the names Alpin, Bergheil, Avus, and Vida. The big hit, however, came in 1929 when the Bessa and the Brilliant became the favorites of many amateurs in all countries. In 1939, Voigtlander brought out the Vito, its first miniature camera; in the same period it added the Vaskar, Skopar, and Voigtar to its line of lenses.

The war put a halt to manufacture of civilian cameras, but added new techniques to the lens maker's art. The catalogue of improved postwar Voigtlanders includes such names as Bessa,

World's first all-metal camera, made by Voigtlander in 1840, resembles telescopes then a specialty of the company.

Perkeo, Prominent, Vito B, and Vito Ha. New lenses computed for modern color photography have also been forthcoming—the Color Skopar, Color Heliar, Ultron, Nokton, and Apo-Lanthar.

In January, 1956, the Voigtlander works celebrated the manufacture of its four-millionth lens. Press, radio, and television recorded this remarkable milestone in the saga of a house that had contributed so much to photography since the birth of the art.

The constant development and improvement of lenses has been both a result and a cause of the long and never-ending progress of the camera. The lens—or camera eye—is of vital importance, but a number of different—and sometimes contradictory—factors affect its quality.

You can see some of these factors in an ordinary magnifying glass. Its single lens (which must be distinguished from a photographic lens "system" or combination of several lens elements) exhibits some of the problems in exaggerated form. When you focus a magnifying glass, the center of the enlarged image appears sharp and clear. But near the margins of the glass

mark development of modern camera

the image looks fuzzy and distorted. If you used the magnifying glass as a camera lens, the resulting photograph would be blurred even more because film brings out lens faults that the eye doesn't even see.

Distortion is inevitable in any single lens no matter how well it is made. Nature seems to have laid it down as one of her absolute laws that no lens can be free of optical faults. The lens maker cannot eliminate these faults—all he can do is correct them.

In good camera lenses we have come to expect a high standard of correction that is far from easy to achieve. The difficulty begins with the glass itself.

Optical glass, of course, is quite different from window glass. Voigtlander technicians start building their products by selecting from several different kinds of optical glass—some of which are very expensive. They melt the glass in solid-platinum crucibles at temperatures of about 4,500° and mix the liquid with metals of the rare-earth group and other minerals. High-quality lens elements are then combined so the strength of one compensates for the weakness of another and the complete "system," or lens, achieves a certain level of correction.

Even before the war, the best German lenses were world famous. As combinations of three to eight elements, they represented in glass nearly everything that was known about the mathematics of light. Development had reached a point where further progress seemed impossible. In recent years, however, new avenues have been opened by the development of high-efficiency lenses. In this work, Voigtlander has played a leading role. Computation of the new lenses often takes years, even when electric calculating machines and the most up-to-date methods are employed. But some of these lenses fulfill demands which no one would have dared to make just a few years ago.

Definition in the margin of the picture area has been considerably improved, especially with fast lenses used at full aperture. This makes it possible for photographers to minimize movement blur by using wider openings and shorter exposures. They can now stop action even with slow, fine-grain films, and they can take color shots under lighting conditions that were once considered impossible.

Voigtlander cameras, equipped with modern Voigtlander lenses, are available in a wide range of models to suit the taste, budget, or need of any professional or serious amateur. For those who prefer the 2¼x3¼ format, with its large, album-sized prints, the robust Bessa I is a fine choice in the medium-price class. Fitted with a special mask, it will also take 16 exposures on a roll of 120 film.

For professionals and amateurs with more exacting tastes, there is the Bessa II, with coupled rangefinder, fully synchronized shutter, and a choice of world-famous lenses. These include the Apo-Lanthar, an apochromatic-corrected lens that will master difficult color shots at full aperture.

Each picture size has advantages of its own. To meet the requirements of photographers who want a smaller camera that is still capable of producing album-sized contacts, Voigtlander offers the Perkeo, a name derived from whimsical German legend. In the early 1700s, a dwarf called Perkeo was court jester to the Elector of Heidelberg. As brash as he was tiny, the dwarf bet the elector that he could drink all the wine in the gigantic Heidelberg Tun—a barrel as big as a small cottage. It is said (though not necessarily believed) that the prodigious little man was as good as his boast. The Perkeo camera may not be all that good, but it is compact, and it can take 12 fine 2¼x2¼ pictures on a roll of 120 film.

To supply the demand for miniature color cameras, Voigtlander makes a wide selection that includes two versions of the well-known Vito. The Vito IIa is of the folding type; the Model B is made with a rigid body; both are equipped with the 4-element, color-corrected anastigmat Color-Skopar *f*/3.5, a lens that makes possible enlargements of high quality.

The Vito B incorporates many advanced mechanical features, including helical focusing, a rapid-winding lever with double interlock, fully synchronized Prontor-SVS shutter, and a large, bright viewfinder.

Many women favor the purse-size convenience of the Vito IIa, and men who like to carry a camera (or a second camera) in their pocket also find it handy.

Convenience of handling has been carried to a new high in the Vitessa, a camera that does more things with fewer parts. The case is designed to fit the user's hand, and his fingers come to rest almost automatically on the essential controls. A single adjustment sets aperture and shutter speed to correspond to a combined light-value number. A built-in exposure meter reports the correct setting of the light-value shutter. Once the shutter is set, practically everything else becomes automatic. A button under one finger releases the shutter, the touch of another finger advances the film for the next shot; the focusing wheel of the built-in coupled rangefinder can be adjusted by easy thumb movement.

The most versatile of all Voigtlander's cameras is the Prominent—master of practically any photographic situation. It has interchangeable lenses, coupled rangefinder, and fully synchronized Synchro-Compur shutter with self-timer. Film wind, shutter tensioning, and film counter also are coupled, and all controls can be seen from above. The lenses—including telephoto and wide-angle—mount directly in front of the shutter, making possible maximum illumination of the whole image area.

Many pressmen and other users of flash regard the fully synchronized Synchro-Compur shutter as an invaluable tool. It permits even illumination of the full image at exposures down to 1/500 second. Features like these put the Prominent in the top brackets of modern photography.

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LOOK TO CARL ZEISS LENSES

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Zeiss developed the *first anastigmat* camera lens in 1890—an outstanding contribution to photography. Numerous other improved lenses followed, including the famous Tessar, introduced in 1902. In line with this scientific pioneering, Zeiss has consistently maintained a position of leadership in lens design and construction.

The traditionally high standards which have made the name Zeiss world-famous are reflected in the many different types of lenses now being manufactured by the Zeiss plant in Oberkochen, West Germany. Here, the most modern facilities for scientific research are combined with rare craftsmanship to give you lenses of superb optical quality.

When you see the name *Carl Zeiss* on a lens, you *know* it will meet the most exacting requirements.

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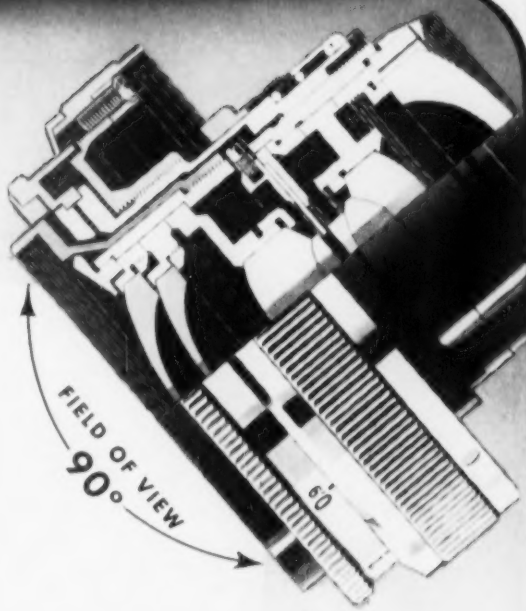

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Renowned Tessar f/2.8 as used in Contaflex cameras.

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Schneider-Kreuznach—from the land of

LESS than a half-hour's drive from the place where the legendary Lorelei is said to have interfered so magnificently with the seamanship of sailors along the Rhine, the town of Kreuznach tranquilly but industriously produces some of the world's finest lenses by the most modern methods known to man.

You would hardly think that the fabulous combination of talents and skills required for such an enterprise could be assembled in a town that boasts only two trolley cars, purchased second-hand from the city of Berlin more than thirty years ago. Yet such is the case and the fact does not seem unusual at all when you visit the very modern works of Jos. Schneider & Co.

Everyone you meet seems to know exactly what he is about, and a tremendous amount about what the other fellow is doing. This is hardly surprising when you learn that most of these men have all served years-long apprenticeships and that continuous development of skills and knowledge is encouraged and expected.

Ninety percent of the many thousands of lenses produced here will go into most of the best-known cameras made in Western Germany. The lenses are designed to meet the special requirements of each individual model of camera and therefore Schneider's mathematicians and engineers are called upon to work closely with the major development engineers in all parts of the country. This constant interchange of ideas and the care with which specifications are met guarantee that the optical and mechanical elements of West Germany's best cameras complement each other exactly. It is only in this way that the world-wide reputation of cameras such as the Rolleiflex, Retina, Linhof, etc., can be maintained.

It may surprise you to learn that very little that is revolutionary in optics has been discovered for many years. Yet great advances have been made just the same, because of the tremendous improvement in methods of manufacture, in the use of new glasses, and of lens designs considered daring or "impossible" a few short years ago. For one thing, tolerances have been getting incredibly small. People who cherish lenses from the "good old days" ought to try one of the modern designs, such as the Xenotar, Xenogon, Symmar *f*/5.6, and the new Angulon *f*/8. Lenses of traditional design, such as the Xenar, Tele-Xenar, etc., already famous for their past performance, have constantly been improved and their present quality is little short of amazing.

Schneider was one of the first optical companies to give the photographic world, after the war, lens designs combining the advantages of air-spaced construction and new glasses. The most-modern type of computer, that which we in America like to call an "electronic brain," is used to compress what would ordinarily be the work of months into hours and, sometimes, minutes. Naturally, this encourages scientists and engineers to tackle even the most complex problems.

The testing of lenses is something that should not be undertaken blithely. At Schneider's lens testing is a formidable process. First of all, there is a constant stream of checks and tests as the lens goes through its many stages of construction. Nothing is passed if there is even a second's hesitation on the part of the checker.

As anyone who has had any laboratory experience at all knows, the only way to conduct a series of tests is to

Grinding of lenses is put on a mass-production basis with precision machine.

Engraving of lens mounts is task of this girl operator at Kreuznach plant.

Assembly of elements of Schneider lenses is trusted to experienced hands.

the Lorelei, precision lenses for the world

Lens-polishing operation at Schneider works is quantity production with a difference: each element gets personal attention.

New modern Schneider lens-manufacturing plant is situated in the pleasant Rhineland town of Kreuznach.

conduct them strictly one at a time. Everything but the factor that you are checking must be eliminated. In the Schneider testing laboratory this precept amounts almost to a fetish. Here you see gigantic machines and stands, weighing hundreds of thousands of pounds, imbedded usually in tons of concrete. Furthermore, this laboratory is located in a section of the plant where it cannot be affected by other machines or disturbed by outside influences. Unfortunately, space and some regard for commercial secrets prevents our telling you about each of the processes the lens must go through before satisfaction registers on the face of the very patient, methodical expert. The attitude, as manifested elsewhere throughout the Schneider plant, is that the best is just good enough.

Diax—new camera from a new factory

A BRAND-NEW assembly-line factory, designed to meet the most modern requirements of contemporary camera design and production, began operations after the war in the thriving, centuries-old city of Ulm, Germany. It was the Diax Kamera Werk, and in the four years since it entered the scene it has had gratifying success. Its founder, Walter Voss, one of the youngest and most enterprising of Germany's camera manufacturers, has made a valuable contribution to photography with his development of the Diax IIb 35-mm coupled-rangefinder camera with interchangeable lenses and synchronized Compur shutter.

The successful production of such a camera has long been one of the most elusive goals in camera design. Its principal advantage is the ease and flexibility with which any type of flashlight source can be synchronized—at any speed—and at the same time maintaining the versatility of fine Schneider interchangeable lenses.

The Synchro-Compur shutter is placed *behind* the lens, as an integral part of the camera body, but in such a way as to avoid the troublesome vignetting sometimes encountered with behind-the-lens shutter, even at 1/500 second. Lenses are quickly interchanged with a threaded ring. A rapid one-stroke winding lever, a rim-set speed-setting ring with click stops, a superimposed single-window rangefinder-viewfinder coupled to all lenses—all these are features of this under-$100 camera.

The present instrument is the result of intensive research and practical testing carried on at the Diax factory since the first model, the Diax I, was introduced several years ago. Lens interchangeability was made possible for the first time with the model Ia, and rangefinder coupling with the IIa. All versions of the Diax have grown more and more popular, and there is now a sizeable family of Diax owners the world over—an allegiance maintained by the fact that all new lenses and accessories fit all previous models of the camera. A universal prism viewfinder for accessory lenses, Proximeter close-up attachements for accurate framing and focusing down to 10 inches, lens hood, filters, leather cases—all may be used on any model. Lenses for Ia and IIa can be used on the IIb. A wide range of focal lengths is available, starting with a 35-mm $f/3.5$ wide-angle, and including three different standard 50-mm lenses and three telephotos.

Later this year the Diax Ib, a simpler version of the IIb, will be available. It will be the same in every respect, with the exception of the coupled rangefinder; this will be replaced by three separate viewfinders for the interchangeable lenses.

ADOX

ADOX is the modern high-resolution 35mm film that permits users of precision-built cameras and lenses to realize the full potential of their equipment.

The superb resolution and fine-grain of ADOX maintain contact print quality even after considerable enlargement. This is because ADOX films have *ultra-thin* emulsions. Unlike the ordinary fine-grain film that scatters light into fuzziness as it passes through the normally thick emulsion, ADOX film intercepts the sharp image in an extremely thin plane without disturbing the light rays. This explains why such sharp, clean-outline enlargements are possible from ADOX negatives.

ADOX films are supplied in a choice of speeds—and each is a thin-emulsion, high-resolution film: KB-14 (ASA 16); KB-17 (ASA 32) and KB-21 (ASA 80).

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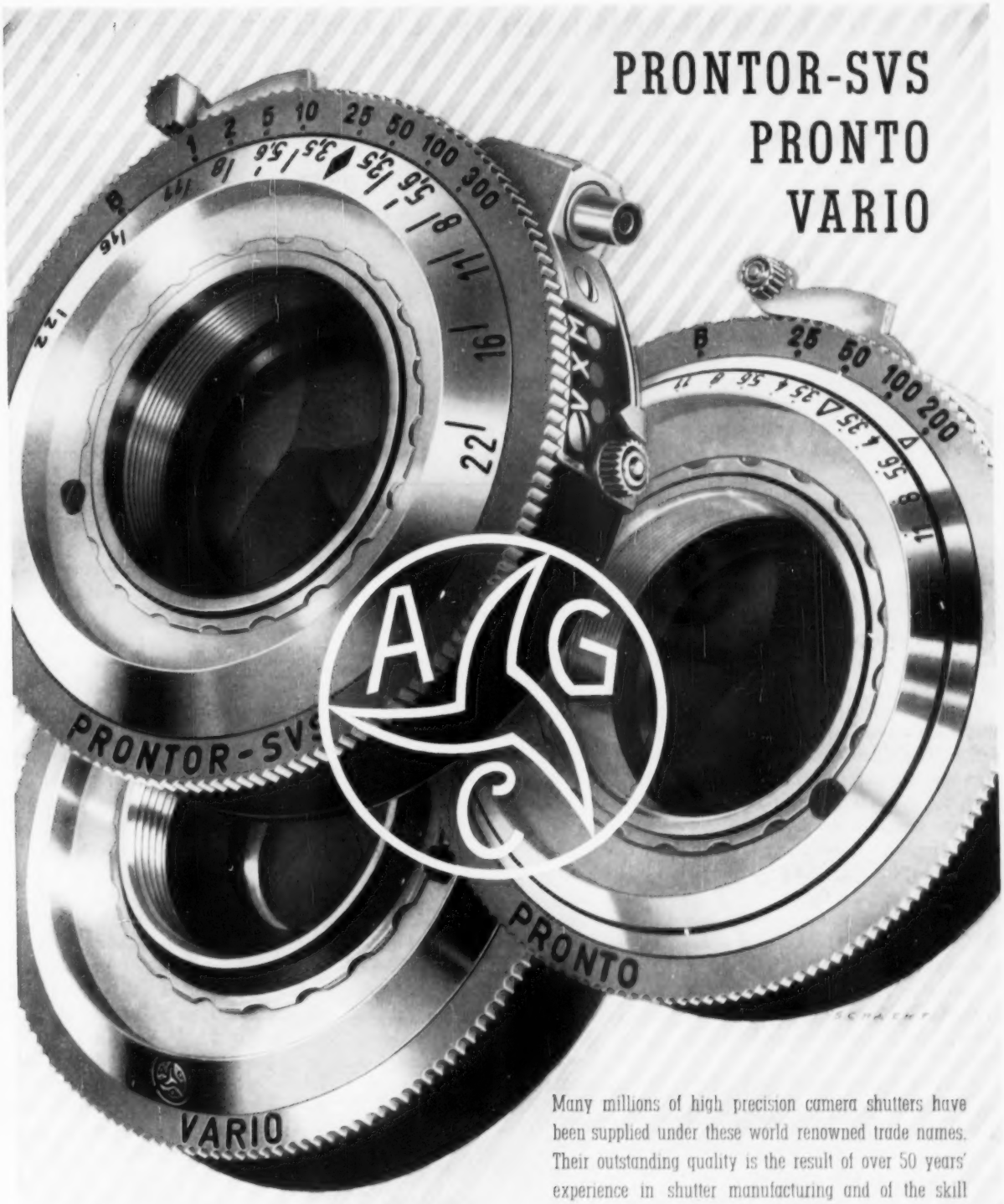

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Cine Bauer celebrates a jubilee

SEPTEMBER 16, 1955, was a gala day in Stuttgart, Germany, for Herr Eugen Bauer, founder and president of a renowned firm, was the center of a jubilee celebration.

Back in 1905 Herr Bauer had established a firm mainly concerned with the manufacture and repair of precision engineering and electro-technical apparatus. Then in 1907, a Stuttgart cinema pioneer brought for overhaul a foreign film projector and Herr Bauer found new pleasure in this sort of work, which also suggested a new field for profitable business. However, there were but few cine-equipment firms in Germany at that time.

Herr Bauer decided to design a projector of his own, and in 1908 two of Germany's early cinemas received the first Bauer machines. Their high quality and durability made such a favorable impression that soon orders began to pour in.

In those early days, exhibiting a film was a difficult and nerve-wracking task for the projectionist. His major concern was to control the film emerging from the machine and the customary practice was to allow it to run into clothes baskets. Since safety film was unknown at the time, the projectionist also had to be a fire fighter!

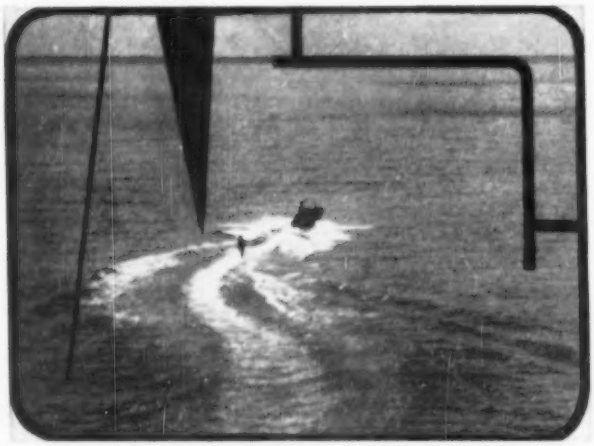
It was the custom for projectionists to learn how to do their work from the equipment manufacturers, so Herr Bauer not only designed and made cine apparatus but became an instructor in its use. Such contacts helped him improve his apparatus.

The year 1919 marked the production of the Bauer all-steel projector, and in 1925 the world's first left-hand projector was created. This was a mirror-image variation of the standard projector and was operated from the right side, allowing the operator to stand between two projectors and handle both without running from one side to the other. The combination became known as "the one-man installation."

Increasing business forced an expansion in 1929, the firm moving to Stuttgart-Untertürkheim and from that time progress was rapid. As early as 1930 the first soundtrack projectors were designed and marketed, and within the next three years the firm produced a totally enclosed model. Another notable advance was the building of 3-D apparatus, and the importance of the impending CinemaScope was realized by Cine Bauer, who contacted Centfox engineers before producing the supplementary equipment for CinemaScope.

When the substandard 16-mm film appeared in 1930 Cine Bauer immediately set to work and its Bauer Selecton I became available in 1933. An improved model in two forms, for projection of sound or silent film, respectively, appeared in 1935. Constant efforts to improve and expand the versatility of its products have resulted in the present existence of a wide range of Bauer substandard projectors.

Cine Bauer has also capitalized its long experience in precision production by making cameras. The firm's first 8-mm cine cameras appeared in 1939, and improvements have been constant, and notable, since that time. Features include silent and smooth operation, because of the close manufacturing tolerances permitted; a film-transport indicator visible in the viewfinder; 90-degree swing-out of film gate for easier cleaning; girder-like film gate for rock-steady pictures; new-type door lock which seals camera hermetically; warning signal permitting gradual scene-cutting; sprocketless, drop-in spool loading; interlock safety system which prevents closing of the door unless the film is properly seated; cable-release socket permitting use of self-timer and remote control; extremely smooth contours, small size, and chrome-blue finish for ease of handling and good appearance.



The Bauer 88B Cine Camera has an exposure meter enclosed in its viewfinder. In operation, two pointers are brought together by moving a small lever, whereupon the diaphragm is adjusted automatically for correct exposure.

Now the Bauer 88, 88B, and 88C are the pride of Herr Bauer and the culmination of his 50 years experience. When he was the center of the 1955 jubilee year the firm was proud to announce that another considerable expansion of the development and production workshops had been completed in jubilee year. The work, begun in 1954, had added 15,000 sq ft of floor space. The staff, it was announced, had risen to a total of 500, mostly highly skilled specialists.

Through its fifty years Cine Bauer has traveled an interesting road and for what it has become today the firm credits its unvarying determination to supply nothing but quality equipment.

Leica

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A lot of cameras look impressive. If you bought a camera for its appearance there would be a great many to choose from. But looks are not all.

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Zeiss Ikon—history of a

WHAT'S in a name? The question is baffling at first in the case of Zeiss Ikon—but worth looking into.

The reader will say that everybody knows the names of Carl Zeiss and Zeiss Ikon are famous in a world where high technical and optical precision have become important tools of everyday living.

But whereas these are established facts, probably but few people would be able to define these words and what they stand for exactly.

If you use a photographic household word like "anastigmat" would you know that it originated within the firm of Zeiss? Dr. Rudolph found, in 1889, the formula for this type of lens which proved needle-sharp to the edges. It was this same Dr. Rudolph who in 1902 came up with the "Tessar" which still is recognized, to this day, as one of the foremost lenses ever to be developed for all-around photographic use.

There were famous firms using Zeiss lenses in those days: Contessa-Nettel in Stuttgart; Ernemann and Ica in Dresden; C. P. Goerz in Berlin. Older readers will remember these names with a feeling of nostalgia. And all of a sudden it will occur to them to ask themselves what happened to all those camera factories?

In 1926, they all merged into one big firm, pooling their technical know-how, marketing experience, and patents. The new firm was called Zeiss Ikon. The Zeiss part is obvious enough, for it was the big optical firm of Carl Zeiss which acted as godfather to this fairly big baby. Ikon is the Greek word for picture.

The new firm had a big task ahead; to boil down a huge and varied camera program into a few easily marketable models, and to develop new types of cameras on a mass-production basis while retaining all the precision and craftsmanship which had made these German camera firms world-famous over the years.

One of the first sensational feats at the time was in 1927, when the first "available light" camera came out at Dresden, headquarters of the new company. It was the *Ermanox* ($1\frac{3}{4}$x$2\frac{1}{4}$ plate) and sported an *f*/2 Ernostar (changed to *f*/1.8 shortly afterward), the first lens of that speed to be produced commercially. Dr. Erich Salomon used it to make his trail-blazing candid photos at the international conferences of that time, showing Briand, Stresemann, Chamberlain at work and at play. American magazines of the day gave big play to those pictures which ushered in a new era of journalistic history.

Jewel-like parts of Zeiss cameras need a magnifying glass for proper assembly.

American photofans will probably remember the original *Contax I* camera (1932), which was the first child conceived in the new union: simple and without chrome trimmings, yet already equipped with metal focal-plane shutter capable of 1/1000 sec speed, Zeiss Sonnar lens *f*/2, and coupled long-base rangefinder. In 1936, the Contax III was the first camera to appear on the market with built-in photoelectric exposure meter.

Members of the younger generation know all about the later models, *Ikonta*, *Super-Ikonta*, *Ikoflex*, and *Nettar*. They are familiar with the improvements which led to today's *Contax II a* and *III a* and, most recently, to the *Contina* and the *Contaflex*. They appreciate the wide range of accessories which allow one to make full and universal use of all the features which the designers incorporated in these cameras.

At the time of the merger, in 1926, *Zeiss Ikon* had taken over several works, the more important of which were situated in Dresden, Berlin, and Stuttgart. In the following years the number of products was cut down, production methods were streamlined and integrated, and each of the factories allotted its own specialty. The second world war interrupted this development. When the war ended the situation had fundamentally changed. The main factories at Dresden were in the hand of the Soviet Zone. What remained of the machinery was dismantled and brought to Russia. Later the company was expropriated. In Berlin, only empty shells of buildings were left. Only the comparatively small Contessa works in Stuttgart had survived the war. They were, however, geared only to manufacturing a few special models which had been allocated to them and there were no administrative offices.

When the Dresden works had been expropriated, board and management decided to transfer the seat of the company from Dresden to Stuttgart, the latter city being located in the American zone.

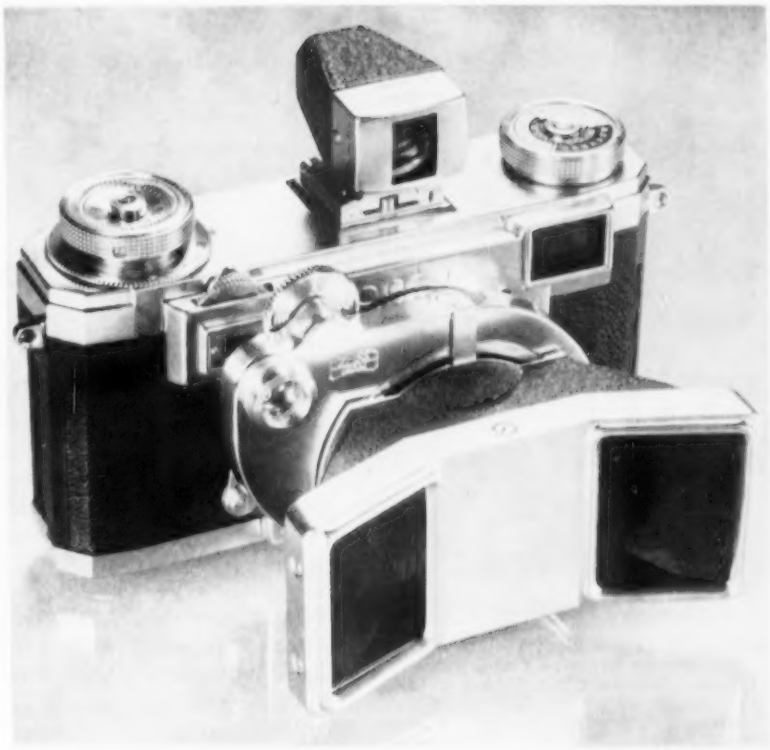
A new administrative center was built up there during the following years. Modern buildings arose and designers worked day and night on new models. The old and the new models of *Zeiss Ikon* cameras which were manufactured in Stuttgart after 1945, sold at first for the most part to U.S. soldiers, soon helped revitalize German export. Fortunately, the name of *Zeiss Ikon* had not lost its magic in the U.S. Demand continuously ex-

famous name

ceeded supply in spite of every effort to increase production.

In 1949, the new *Contax II a* and *III a* models appeared, with all the qualities which had once made their predecessors famous; fine finish, a metal focal-plane shutter with all speeds adjustable on one knob; coupled rangefinder-viewfinder of extreme precision; *Zeiss* lenses of various speeds and focal lengths, easily interchangeable by bayonet mount; self-timer for various preset periods; synchronization for all types of flash.

The latest product from the house of *Zeiss Ikon* is the *Contaflex*. The plans for a single-lens miniature reflex go back to prewar days in Dresden, but they had been lost, together with the Dresden plant. Now the camera had been newly developed to maturity, welcomed by amateur and professional alike. The automatic preset diaphragm, a new feature, shows the image ultrabright on the focusing screen up to the moment when the shutter release is pressed. Then, within a fraction of a second, the diaphragm closes down to the preset stop. The Zeiss Tessar *f*/2.8 has long been famous for its definition, both for color and black-and-white. Two rangefinders, operating independently, assure superaccurate focusing. (There is also a model with built-in photoelectric exposure meter.)



The stereo attachment for the Contax is typical of the many accessories which are designed to work hand in hand with its system of interchangeable lenses to make this camera adaptable to all fields of photographic work.

The Contaflex being a single-lens reflex, the picture in the finder never shows parallax, even when using proxar lenses—thereby opening up the whole field of close-ups for Contaflex owners. It is not surprising that the Contaflex was an immediate success and won many new friends for the name of Zeiss Ikon. It brought a whole new field of photography within range of the amateur as well as the professional.

Apart from these highly specialized cameras, Zeiss Ikon, now as formerly, makes cameras in the usual sizes: *Super Ikonta* 2¼x2¼ with a coupled viewfinder-rangefinder which is particularly appreciated by reporters and serious amateurs; the twin-lens reflex, *Ikoflex*, (2¼x2¼), and the medium-priced *Contina I a* and *II a*, which are meant for use by the average amateur.

As proof of far-sighted work for the future the *stereo field* may be mentioned. For this purpose Zeiss Ikon developed, after a unique system, special accessories for the miniature cameras Contax and Contaflex. These cameras, through special attachments, show the two stereoscopic pictures within the one 24x36-mm frame, i.e., each of these stereo pictures is of 18x 24-mm size. They are close together and remain so during all following steps. This is the unique advantage of the Zeiss Ikon stereo system.

One can even snap, alternatively, stereo and normal-size pictures on the same roll just by taking the special stereo attachment on or off. Zeiss Ikon is the only firm to offer a special projector for its stereo system.

In the amateur-movie field the novel *Movikon 8* system, which permits a movie camera to be held horizontally like a Contax, led to big demand which it is hard to satisfy.

A new factory, built at Kiel, is devoted to the manufacture of movie equipment solely for theaters.

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King—

precision in the Black Forest

BAD LIEBENZELL, a charming spot in Germany's famed Schwarzwald, the Black Forest, does not look as if it had any industry more serious than enjoyment, but it is the home of one of the world's newest cameras, the King "Regula."

Only six years old, the "Regula" was designed by its creator to meet three criteria. It should be of good quality, it should have a smart appearance and it should be priced within the reach of everyone. In the Black Forest plant, this purpose is being carried out. The "Regula" is produced by a staff of 300 highly trained specialists whose motto is "take your time to do the best." While not a mass-production camera, the "Regula" is now exported to 85 countries, winning new friends all over the world. A year ago, the celebration for the 100,000th camera was held, not a bad record for a camera which was introduced to the world at the 1951 Photokina. About sixty percent of the output is for export.

Herr King, creator of the "Regula," learned precision craftsmanship as a watchmaker. His aim was to design a camera with clock-like accuracy, to be built by the Black Forest workers whose skill in handling small, precise mechanisms is traditional.

The first model of the "Regula Cita-lux" was presented to a girl of real distinction in Germany—Ossi Reichert, her country's only gold medal winner in the Olympic winter games. It is a deluxe camera with gold trim and red leather covering which comes in a box you might expect to contain jewels. While it surpasses the rest of its family in external elegance, all cameras of the "Regula" line have the same, basic mechanical quality inside and are built with the same careful craftsmanship. All make use of the same basic design which has become well established even though it is only six years old.

There are three models in production, differing in their lens equipment. Models available in the United States offer Steinheil Cassar lenses of f/3.5 or

The Regula "Cita" is sold in America as the "Gipsy," featuring 45-mm Steinheil lenses, coupled rangefinder.

f/2.8 speeds in Prontor synchronized shutters. In addition, the "Regula Cita," sold here as the "Gypsy," has a built-in range-and-viewfinder. All models offer rapid winding.

Omnica—
camera cases and gadget bags

TUCKED away in one of the most delightful valleys of the northern whose fine leather goods are sold in Rhineland is the Kritzler Company, every part of the globe. This is the home of the Omnica, a fitting—and fitted—leather case for fine cameras.

Noticing that the well-equipped photographer was being increasingly burdened by his many valuable possessions, Arthur Kritzler designed a case that could hold a good assortment of accessories in addition to the camera. That many camera owners saw the idea's merit is proved by the world-wide success of the Omnica.

Kritzler's cases are made of choice, top-grain leathers. They are provided with pockets and clamps so accessories of different styles, shapes and sizes can be tucked away securely in minimum space.

And perhaps most important to the photographer, the camera carry-all gives his equipment the protection it deserves.

Linhof cameras and Carl Zeiss lenses are made in West Germany.

THERE IS A

NEW *Linhof* CAMERA

The Super Technika 23 'Special'

2¼ x 3¼

FEATURING THESE REMARKABLE

CARL ZEISS LENSES:

You'd expect great things to happen when two great names such as Linhof and Carl Zeiss get together . . . and they did. The result is the new **Linhof Super Technika 23 Special**, the most remarkable camera ever made available in the small camera field.

MECHANICALLY the new 23 Special offers every facility to permit you to realize all the advantages of these unusual lenses. There is, in fact, no other 2¼ x 3¼ camera with such features:

- **Multifocus Range-Viewfinder** — combines focusing and viewing image in one finder — instantly couples for each specific lens selected — delineates exact field for each lens.
- **Revolving Back** — permits changeover from horizontal to vertical format — and vice versa — without disturbing camera.
- **Camera Movements** — back tilts and swings, rising and tilting lens standard and drop bed for control of perspective distortion and depth-of-field.
- **Triple Extension Bellows** — to permit full use of 180mm Sonnar — and for extreme close-ups.

OPTICALLY the use of these new sensational Carl Zeiss lenses imparts a versatility to the already versatile Super Technika, never achieved by any other camera. The Super Technika 23 Special is the only camera with which these lenses are available:

- **53mm f4.5 BIOGON** — Never before has there been such a wide-angle lens available to the 2¼ x 3¼ user. The 53mm Biogon provides 90° coverage with outstanding resolution even at full aperture. High speed and absence of vignetting make the Biogon particularly desirable for color photography, and for work under adverse conditions.
- **100mm f2.8 PLANAR** — An important optical development in which the maker has achieved a high order of correction at large apertures. Resolution and color correction approach the performance normally associated with slow commercial lenses. The Planar is a magnificent all-around lens — and of a speed that makes it ideal for available light photography.
- **180mm f4.8 SONNAR** — Based upon the designs of the famous lens which earned its reputation in miniature and movie photography, the 180mm Sonnar is a worthy companion to the Biogon and Planar. There are only 6 glass-to-air surfaces assuring maximum brilliance — and the Sonnar is fully color corrected and suffers no vignetting even at full aperture.

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100mm Planar and 53mm Biogon	955.50
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Gauthier—50 years of between-lens shutters

SHUTTER design has come a long way since the days of momentarily removing a lens cap to make an exposure. Contributing to this growth during the past 50 years has been the firm of Alfred Gauthier, founded in 1904 by a photominded technician who began making shutters in a small workshop at Calmbach in the Black Forest region of Germany. Today, a large proportion of German cameras manufactured for export have shutters carrying Gauthier's distinctive trade mark—three unfolding shutter blades and the initials A.G.C.

Perhaps the best-known Gauthier shutter is the fully synchronized Prontor-SV, which can be synchronized for flashbulbs as well as electronic flash, and offers the following range of speeds: 1, 1/2, 1/5, 1/10, 1/25, 1/50, 1/100, and 1/300 second. The shutter is made in two sizes designated 0 and 00, both incorporating a delayed-action device.

In addition, there are the following shutters: Prontor-S, Pronto, Velio, Vero, and Vario. The Prontor-S shutter yields the same exposure times as the Prontor-SV, and incorporates delayed action as well. An X-contact is provided for actuating the flash, which means that electronic flash can be operated with any of the available exposure times. Class F, SM, and SF flash bulbs can be synchronized with exposure times down to 1/100; class M flashbulbs with exposure times down to 1/25.

The exposure times of the Pronto range from Bulb and 1/25 to 1/200 second. Delayed action also is incorporated. X-synchronization is provided by the flash contact. The exposure times of the Velio shutter range from 1/10 to 1/200 second, of course with additional X-synchronization for the flash contact. The Vero shutter is another product of the same firm. This shutter has the same range of exposure times as the Pronto, and X-contact for flash, but does not incorporate delayed action. The exposure times of the Vario are: 1/25, 1/50, 1/75 and 1/200 second. It also has the same flash contact as the Prontor-S.

In 1954 Gauthier introduced a new shutter, the Prontor SVS, intended eventually to replace the models Prontor-S and Prontor-SV. The Prontor-SVS is a fully synchronized shutter which, while affording all advantages of the Prontor-SV, is characterized by maximum simplicity in operation and a still wider range of application. In appearance the Prontor-SVS differs only slightly from the above-mentioned shutters. In order to retain interchangeability with the other Gauthier models, no change was made in regard to its external dimensions and the arrangement and design of the controls.

A feature that has been retained is the possibility of replacing the manually-operated cocking lever by a cocking shaft which projects to the rear from the shutter case so as to permit the cocking mechanism to be coupled in an extremely simple manner with the film-winding mechanism. It makes possible several low-priced cameras equipped with a rapid-cocking feature.

The most striking feature of the new Prontor-SVS shutter is the selector scale bearing the three markings M, X, and V. A pointer attached to a selector ring can be set opposite any of these markings in order to select the desired mode of operation. Operation of the shutter-cocking lever or, in the case of a shutter coupled with the film wind, of the rapid-transport lever will cock the shutter regardless of the mode of operation selected. The fact should be noted that the positioning of the pointer along the scale gives complete freedom of selection regardless of whether the shutter has been cocked or not.

Depending on the setting of the selector ring, the shutter may be used as follows:

(a) "M" Position—This is the setting for flash exposures using M-type flashbulbs with shutter speeds between 1/50 and 1/300 second.

(b) "X" Position—This is the setting for electronic-flash exposures using any desired speed up to 1/25 second.

This familiar trade-mark is found on all Gauthier shutters, used in many models of German cameras for export.

(c) "V" Setting—This setting is selected when the self-timer is to be used. After cocking it is not necessary, besides setting the pointer at the "V" mark, to perform any further manipulation.

Together with the feature of permitting the selection of any desired shutter speed, including the fastest, to be made *before* as well as after cocking, the Prontor-SVS shutter gives the photographer full freedom to set shutter speeds, flash synchronizer, and self-timer up to the very moment of depressing the camera release.

Gauthier shutters are interchangeable without necessitating alteration of the camera. The customary flash contact nipples can be replaced by wires fitted to the shutter so that the flash contact can be fitted to the camera body. One version facilitates coupling of the shutter tensioning with the film-transport mechanism. Any Gauthier shutter type is also available for stereoscopic cameras, and one special type is designed for mounting in single-lens-reflex cameras.

Apart from shutters, Gauthier also manufactures release cables, flash cables, and plugs. The release cables are available with any desired threading. Some types have locking devices which facilitate time exposures with shutters which lack a time setting.

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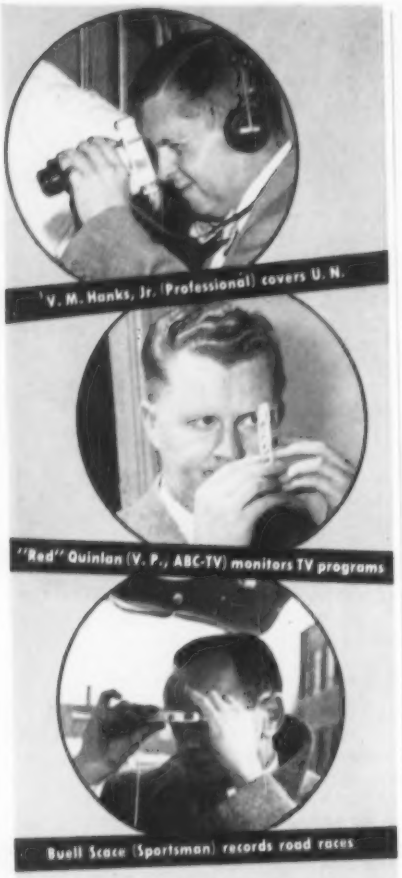

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Linhof—

precision press and view cameras

IT SOUNDS like name-dropping on an international scale when you hear the genial President of the Linhof Camera Works, Nikolous Karpf, talk—a sturdy Bavarian who resides in a modern glass-and-concrete palace on the southern outskirts of the city of Munich, Germany.

Ford, de Havilland, Chrysler, Shell, US Army as well as Air Force—these are a few of the names which tumble from his lips. This does not mean we are dealing with a peculiar case of ambitious social climbing—it just indicates a few of the better-known customers to whom Linhof cameras go when they leave the modern Munich factory. More than 600 employees are hard at work putting together one of Linhof's mechanical marvels.

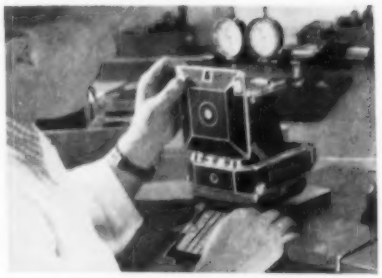
In all corners of the world there is an almost lengendary aureole surrounding "the Linhof." Some people speak of "the Technika" instead—which is just another way of putting it.

Linhof is primarily the family name of a Munich mechanician and cabinet maker who set up shop in 1887, producing with painstaking craftsmanship first shutters, then cameras, every single one of them handmade. Today the term Linhof stands for a big firm, "Technika" for its foremost product.

Karpf, owner of the Linhof Camera Works, is an affable 6-ft 5-in. man with an engaging grin and the build of an All-American football star. His appearance is deceiving in a way because his lifelong ambition has had to do much more with things like putting tiny screws in the right places or perfecting complicated gadgets.

This ambition is easily explained. Nicky, as his friends call him, entered Valentin Linhof's workshop (for it was not much more than that) a few years after the death of the original owner. He was already filled with the idea of producing a revolving camera back for which he held a patent.

From the time Nikolaus Karpf acquired the firm, which was soon afterwards, he kept to one self-imposed guiding rule which at the time seemed the maddest thing he could do: not to toy with the idea of building miniature cameras which were the surest bet then.



For perfection: a Linhof engineer tests Technika in quality control.

Instead of failure, as many predicted, he managed to achieve the seemingly impossible: after almost two decades of working on his large-scale, all-metal camera: perfection. With regard to built-in comfort, speed, and ease of handling it can now compare in many ways with the slickest miniatures on the market. The cameras coming from Linhof still retain all those features of solidity, rigidity, and versatility—which are the reasons that made Nicky Karpf cling to the big ones—and they have new comforts too!

When one looks at the Linhof line today, two things strike even the most unimaginative observer:

First, there is the clean sweep of lines which makes the latest models look like sample cases from a lecture on modern industrial design. And second, as soon as one starts to handle the camera, to try its many movements, swings, and tilts, one gains the conviction that the "inner life" of the Technika is as sound, even sensationally so, in its functions as it is beautiful in its exterior.

On the European continent, with its wealth of camera factories, Linhof is the only major company specializing in large-format cameras—70 percent of which, incidentally, are exported.

The Linhof engineers have to com-

pete with the tempting glamour which emanates from the compact, neat appearance of the high-class miniature and its range of accessories. That is why these engineers have perfected all features which contribute to ease of handling, weight-saving, etc., to an astonishing degree.

The miniature camera, by its very nature, is a rigid system which allows for none of the multiple adjustments so necessary for more serious work: e.g., revolving and tilting back for distortion correction and additional gain in depth of field, rising lens standard for multi-directional shift, tilt, and swing movements; triple-extension bellows, etc. The Linhof has all these adjustments!

The principle of the coupled multifocus rangefinder, first built into the Linhof Super Technika 4x5 and 5x7 and developed to utmost perfection in the newest Linhof creation, the Super Technika 23, is one reason for the ever-increasing demand for these models. Enthusiastic owners have called it: "A snap-shot camera with all the features of the most versatile view camera."

A new improvement of the Linhof system is the Universal Back for the Super Technika 4x5 and 5x7, which allows the use of all types of film holders, European or American. It also brings the convenience of the spring back to users of 4x5 and 5x7 films.

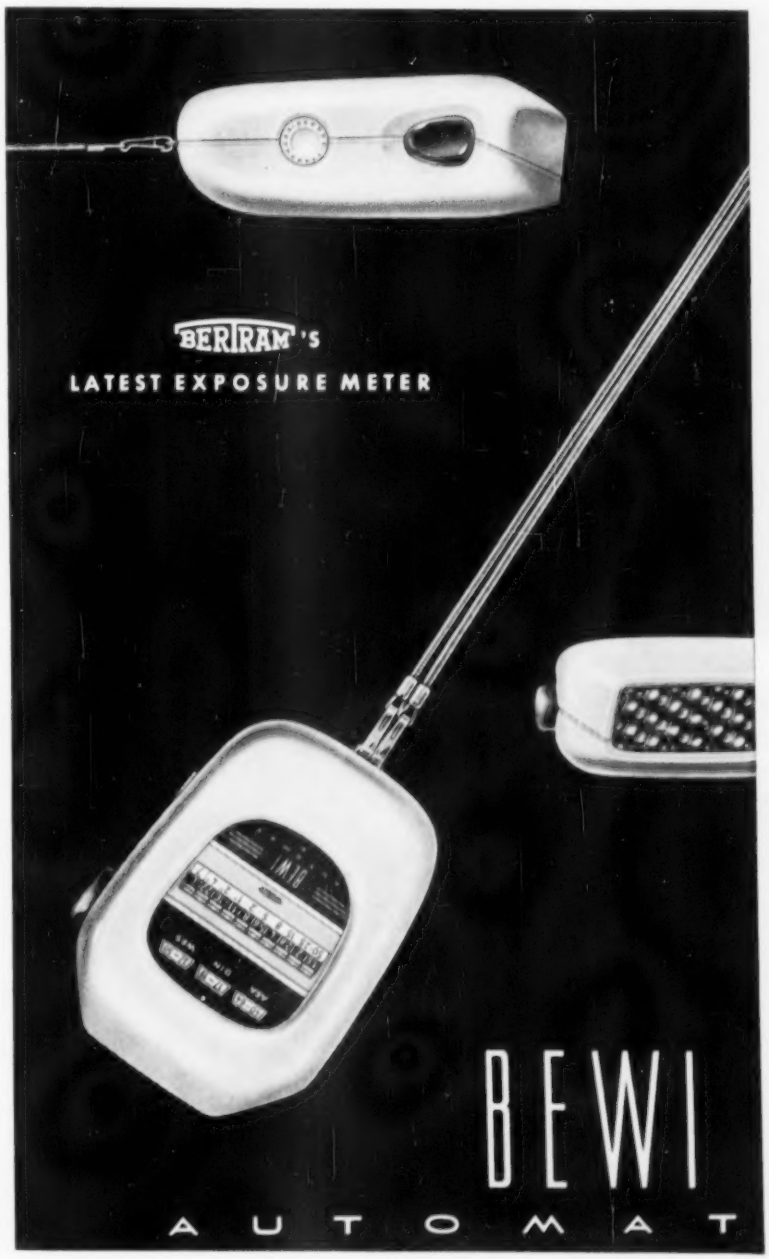
The Super Technika 5x7 is considered to be today's most advanced industrial camera, and because of the built-in multifocus rangefinder, it is also often used for portrait and fashion photography. Because of its interchangeable backs, the formats 12x16.5-cm, 10x15-cm, 9x12-cm, 4x5 and 2¼x3¼ can be used with this camera.

To round out its line, the Kardan View Camera, Linhof's latest creation, has been put on the market. The components of the camera, the monorail track, front and back frames, bellows sections, and universal joints, are interchangeable and allow various combinations. Reducing backs make it possible to use different negative sizes with the camera.

The adjustments of the Kardan camera are limited only by the optical characteristics of the lenses used. The front, center, and back frames can be moved up and down, as well as to either side. Also, lens and camera back can be tilted around the nodal point. Safe locking of every adjusted position warrants vibrationless operation. To facilitate camera adjustments when using a wide-angle lens, special balloon-shaped bellows are supplied.

The brief description of the Linhof program would not be complete without mentioning the wide range of their all-metal precision tripods. The manufacture of tripods was started through the initiative of Mr. Karpf, who felt that cameras like the Super Technika would be incomplete without adequate tripods.

There is a remarkable, practically universal line which ranges from the "heavy-weight" Gigant Studio Stand (250 lb) down to the pocket sized "Clampod." They are all of metal construction and are made of a super-hard aluminum alloy with a finish that withstands all climates.



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Gossen of Bavaria—pace-setter in light-meter design

P. GOSSEN and company, one of Europe's largest manufacturers of electrical measuring instruments, was founded in 1919. Its beautiful modern plant is located in landscaped gardens and parks in the university town of Erlangen, Bavaria—the town where physicist George Ohm did his famous research. The main entrance to the plant is a monument to Ohm.

One of the pioneers in the field of photoelectric exposure meters, Gossen marketed its first model in 1932. Exposure meters had then been in use for a dozen years or more, but available models were too complicated and expensive for the average photographer. Gossen turned its know-how in electrical-instrument manufacturing to the job of mass-producing simple but reliable meters that could be sold at a reasonable price. It succeeded in its early efforts and has since taken a commanding position among the world's suppliers of photoelectric exposure meters. In addition to its line of separate meters, Gossen also manufactures a large percentage of the light meters now being built into cameras.

In common with most leading manufacturers, Gossen tries to keep its product up-to-date. Company researchers feel they have kept ahead of general demand in several important ways. Their Sixtomat X-3 exposure meter, for example, was the first to include the new light-value scale in addition to standard ASA shutter speed and *f*-stop scales; and to help conquer color distortion, the same meter was provided with a "color finder" that indicated color-temperature ranges at a glance.

Gossen designers take special pride in the streamlined modern design of their products, and the fact that—without adding any attachments—they were able to adapt all their meters to read incident and reflected light. They have pioneered also in color-temperature meters and in moderately priced meters of wide sensitivity range.

Minox—2½ ounces of precision

ONE of the most intriguing cameras on the market today is the Minox, weighing 2½ ounces, yet with an *f*/3.5 lens, a shutter to 1/1000 second, built-in flash and filters, and all in a package about the size of a pack of chewing gum.

A visit to the Minox plant in Wetzlar explains some of the precision incorporated in so small a camera. Almost 600 workers are engaged in the production of the camera and accessories which make up the Minox system. One gets the impression of being in a watch factory, an apt comparison. Shutter blades .00015 inches thick, hair springs almost invisible, screws the size of grains of sand, are some of the 200 components of the Minox camera.

The lens is made in the company's own lens department, ground to critical tolerances with a claimed resolving power of 200 lines per millimeter. Some idea of the tiny size of the lens may be obtained by dividing the focal length, 15 mm, by the speed, *f*/3.5. This gives an approximate diameter of 4.3 millimeters, about 1/5 of an inch.

After the camera and lens are assembled, the unit is put on a test bench for optical and mechanical tests before being allowed to leave the factory. Complete details of every camera tested are filed at the Minox plant. The accessories are made with equal precision.

Film cartridges are assembled and loaded here with a wide variety of film for every need. These films range from slow, high-contrast copy films to the extremely fast films for "available light," plus a choice of color film. The Minox company also maintains processing laboratories both at Wetzlar and in the United States to insure high-quality results for Minox users. Precision is as important in processing as in manufacture, for a defective part is something that can be checked and replaced, whereas a defective negative is a picture lost forever.

Balda—quality at moderate price

BALDA Kamera-Werke was founded in 1908 in the famous camera city of Dresden, now in the East Zone. After World War II this plant was abandoned and a new one founded in the West German City of Buende.

Since its very beginning the Balda firm has been dedicated to the production of fine cameras in the popular-price field. This policy is still in effect today with the famous Super Baldina cameras, which are offered with fine lenses and shutters, and which incorporate such advanced features as rapid film transport, automatic shutter-winding mechanism, double-exposure prevention, and an extra-large viewfinder.

The new 35-mm Super Baldina has a retractable lens which pushes into the camera for compactness in carrying and then pops out for use at the touch of a button. A single-stroke lever advances the film and cocks the shutter in the same operation. The lens has an aperture of $f/2.8$.

Focusing rangefinder and viewfinder are combined in one window to facilitate focusing and composing the picture at the same time, without shifting the camera before your eyes. The shutter provides a range of exposures from 1 second to 1/300 second, making possible a range of subjects from "available-light" shots indoors to fast action outside. There is M-X synchronization for flash, permitting the use of a variety of flashbulbs as well as electronic flash equipment. A built-in self timer lets the photographer get into the picture himself, or can be employed for jar-free tripping of the shutter when the camera is used on a tripod and a cable release is not at hand.

An ingenious feature of the Super Baldina's cousins which take No. 120 film is their variety of picture sizes. You can take 8 pictures $2\frac{1}{4}$x$3\frac{1}{4}$, 12 photos $2\frac{1}{4}$x$2\frac{1}{4}$, or 16 exposures $1\frac{5}{8}$x $2\frac{1}{4}$, depending on the subject and the size negative you need.

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Xenagon 35mm f/3.5	69.50
Isconar 85mm f/4.5	49.50
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Bertram —

from ostrich egg to exposure meter

AROUND 1930 the big sensation in certain technical circles was selenium, a rather rare element which in metallic form changes its conductivity under the influence of light—a quality which, naturally enough, invited its utilization for photographic exposure meters. One of the many engineers fascinated by these possibilities was Ernst Bertram, owner of a small factory in Munich which heretofore had specialized in producing theodolites and "extinction-type" exposure meters.

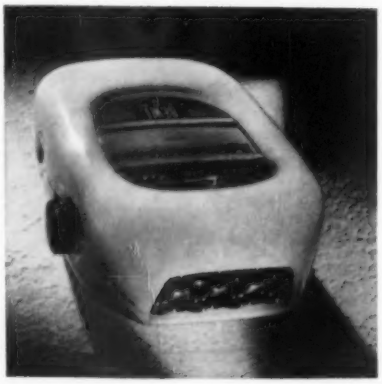
Ernst Bertram, together with his younger brother, Wilhelm, an electrical engineer, experimented with selenium for two years. The progress made during that time is graphically illustrated by three egg-like contraptions which rest on brother Wilhelm's desk.

The first has the general size of an ostrich egg although it is a bit flatter on two sides. It is inscribed 1932. The second resembles a cassowary egg in format: it bears the date 1933. And, finally, a very familiar shape, roughly the size of a normal egg, represents 1934. You guessed it: this is a tri-fold monument to the history of the famous Electro-Bewi exposure meter.

The fact that Electro-Bewi, with essentially the same external features, is still on the market today (now under the name Bertram Standard) bears testimony to the fact that it was ahead of its time when it came into being.

As sellers' market turned into buyers' market the house of Bertram stood ready to offer new products: a whole line of light meters different from the (still egg-shaped) "Standard" in that they were more compact, lighter in weight, and had particularly wide measuring range. Names like Chroton and Chrostar were chosen for this line.

However, a return to modified egg shape took place when the Bewi Automat "A" was introduced at Photokina, 1954. In addition to its shape, the new meter incorporated an interesting new principle—it not only gives a reading but registers it at the same time.



Bertram Bewi-Automat A has rounded shape; preserves the light intensity reading as long as is desired.

This is how it is done: first you set your film speed, The film speed indicator is calibrated in DIN, ASA, and Weston. All you have to do is to press a red button for about one second while pointing the light window of the instrument in the direction of the subject. (There also is provision for incident-light measurement.) On releasing the button, the evaluation of all factors has been done automatically and the result fixed, ready to be read, *but also to be preserved* till the next measuring. All you see is one line of *f*-values, (lens "stops"), set against one line of shutter speeds (or time exposures in seconds, respectively). As an aid for those who work according to the new LVS (light-value scale) of Compur shutters the *one* figure needed for this system is also provided.

The registration part of Bewi Automat A's action becomes especially handy when the photographer is working under adverse light conditions or at unusual angles.

The photographer who uses the Bewi Automat A has the chance to minimize his attention to technical processes, give a maximum of attention to his subject, and to the picture.

Kilfitt—specialists in unusual lenses

FEW parts of Bavaria are more picturesque than the valley of the *Isar*, Munich's own river, where a country house at Grosshesselohe bears the nameplate "Heinz Kilfitt," on its door.

One might expect to find, as a matter of course, a big factory and a big organization producing Kilfitt products. The factory, however, is located on the ground floor of the house. That's all there is to it!

Heinz Kilfitt, now in his fifties and full of vitality, is the living antithesis of the theory that modern industry has to be big. Having come up from the watch-making profession, he is a self-made man. He had a number of inventions to his credit before the war, but since it has added a surprisingly large number of feathers to his cap which many a bigger manufacturer might envy. They are:

Typical of Kilfitt products is this 130-mm Grand-Kilar f/1.9 long-focus lens on a Pentacon.

Reflex housings for miniature cameras which combine streamlined exterior and beautiful finish with practical shortcuts for efficient picture-taking: one-cable synchronization between mirror and shutter; bright focusing screen with frame clearly outlined; possibility of using 90-mm lenses at infinity.

Kilar lenses to go with the reflex housings (also supplied for single-lens-reflex cameras and for ciné). These lenses of various speeds and focal lengths (from f/2.8, 90-mm via an f/3.5 150-mm to "the big ones" of 300, 400, and even 600 mm, the latter with a speed of f/5.6), have won acclaim in their short existence—Ylla, the late animal photographer, used them for all her long-distance work in Africa and India; as did Walt Disney for a large part of his nature films. Something very special is the *Grand Kilar* which soon will be available; it is remarkably sharp for an f/1.9 130-mm lens.

Makro-Kilar: How often have you wondered why most lenses focus only to 3 ft or so, and how often have you been angry at that? Well, so was Heinz Kilfitt. But, he did something about it by producing the Makro Kilar f/3.5, 40-mm which in one continuous operation focuses from infinity to 2". A new Makro Kilar f/2.8, 90-mm, now being introduced, focuses to 3".

Much less known than the above-mentioned products is that after the war Kilfitt designed six new cameras for other firms, among them a beautiful stereo, a single-lens reflex with automatic preset diaphragm and—for the U. S. market—a speed camera with a shutter speed of 1/4000 sec!

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Steinheil of Munich
a household word to photographers

IN VARIOUS accounts dealing with early German photographic factories, the name of Munich keeps turning up—practically always in connection with some mechanic's workshop which through the intelligence and industry of its owner developed into a sizable plant of world renown over the years. Not so with Steinheil, the oldest of Munich's optical establishments.

To photographers Steinheil is a household word for good lenses. Not all of them know that the great optical scientist built a camera which one could classify as a miniature—in the same year that Daguerre made the invention of photography known in Paris, 1839! It may be noteworthy to mention that whereas Daguerre's camera had a speed of *f*/14, Steinheil's had a speed of *f*/3.5 and a focal length of 135 mm. He made pictures on 42x 42-mm sensitized paper, some of which have been preserved to this day. Details taken from a description in a local paper in 1839 sound as timely as if they were taken from a pamphlet about modern miniatures: "Small picture size makes it possible to carry the camera around and work in the open air. Negative material is cheaper; objects in foreground and at a distance are sharp at the same time."

Further achievements of Steinheil and his successors sound normal enough when rattled off, although each represents a fair measure of optical progress: "Periskop" lens in 1865 (first rectilinear wide-angle); 40.6-mm Medaillon lens *f*/2.7 in the same year; Aplanat lens in 1866; numerous "Aplanats" in later years constituting a gradual transition to the anastigmat type (some had 6 elements; in 1878 there was a *f*/4.8); and lastly, numerous anastigmats like Orthostigmat, Unofocal and Cassar.

The latter is well known today as an inexpensive yet speedy high-quality lens of the triplet type. While mentioning this particular lens set-up, an amusing anecdote comes to light from the company annals. Old Professor Steinheil took great interest in local events, and during one period in the last century, there was great indignation against adulteration of Munich beer by greedy brewers. He designed a "beer lens," a triplet that consisted of two glass lenses in the middle of which was a fluid lens, a tiny quantity of the beer. The gadget showed impurities by means of spectral comparison.

More than half a million Cassar lenses, modeled after the famous Cooke lens, have gone to camera manufacturers these last years—years in which an alert new team of management and sales experts has led the old firm out of the postwar difficulties to new, vigorous life. New optical glasses and improved formulas have given the Cassar a shot in the arm. A younger brother, the Cassarit, has proved particularly valuable for color work.

When you listen to the able president of the firm, Dr. Luitpold von Hornstein, or to the energetic sales manager, Albert P. Schiks, the talk is solely of other things—of excitingly modern products and whole new trends in the firm's program.

Foremost among these new trends is the stress laid on optical equipment for single-lens-reflex cameras. The latest is the 55-mm Auto-Quinon *f*/1.9, which, with 6 elements, fulfills all requirements of critical definition because of an unusual type of refractive optical glass used for the first time. It has an automatic mechanism for preset-diaphragm operation which allows focusing at full aperture and closes down automatically to the preset opening just before the shutter goes off. The automatic control system is contained in a vertical gear-operated transmission lever which operates a trigger device which simultaneously releases the shutter. The lens focuses from infinity to 16 inches!

From this objective of high quality a direct way leads to other lenses, all primarily for use with single-lens-reflex cameras (although also available with Leica thread). There is the 4-element Culminar line and the various Quinars with 5 elements. The 85-mm Culminar *f*/2.8, with its remarkable speed is well suited for sports, stage shots under "available light," and portraits, while its 135-mm *f*/4.5 counterpart is a handy and moderately priced instrument which converts various 35-mm cameras into tele cameras.

Carl August von Steinheil, famous astronomer and optical scientist of Munich, who lived from 1801 to 1870.

Preset diaphragms are an added feature of the two Quinar lenses, the 135-mm *f*/2.8, and 200-mm Tele-Quinars *f*/4.5. Besides the remarkable definition and speed of both lenses, a preset diaphragm in a 200-mm lens is a "first" which comes in extremely handy when the photographer has to cope with difficult stadium sports or wildlife shots. In the case of all these new lenses which were enthusiastically received by dealers and photographers, the particular pride of the firm lies not only in their optical quality but also in the perfection of the mountings and the beautiful finish.

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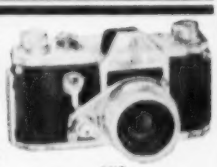

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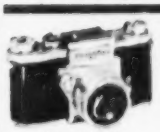

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9th Annual Exhibition of Marine Photography International*, The Mariners Museum and James River Camera Club, Newport News, Va.
On exhibition at The Mariners Museum, March 25 through April 22, 1956.

1st Lauren Rogers International Exhibition of Photography*, Lauren Rogers Library and Museum of Art, Laurel, Miss.
On exhibition at Lauren Rogers Library and Museum of Art, April 1 through 27, 1956.

20th Philadelphia International Exhibition of Photography 1956*, The Miniature Camera Club of Philadelphia, Philadelphia.
Prints on exhibition April 5 through April 30, 1956, in the Gallery of The Free Library of Philadelphia, Logan Square; slides on exhibition April 5 at 8 p. m., April 7, 8, 14, and 15 at 3 p. m. in The Free Library of Philadelphia Lecture Hall.

9th International Salon of Speleological Photographic Art, Washington, D. C.
Closes April 6, 1956 (prints).
Entry fee, 25 cents per picture up to a maximum of $1 for four or more entries; no entry limit.
On exhibition in the Smithsonian Institute, Washington, D. C., and in the American Museum of Natural History, New York City. Dates to be announced.
For information and entry blanks, write Benton T. Hickok, Salon Coordinator, N.S.S., 3397 18th St. N.W., Washington 10.

9th El Camino Real International Color Slide Exhibitions*, El Camino Real Color Pictorialists, Los Angeles.
Closes April 6, 1956.
Entry fee $1, four slides allowed.
On exhibition in Los Angeles, April 27 and 30, May 2 and 3; Santa Barbara, May 5.
For information and entry blanks, write 9th El Camino Real International Color Slide Exhibition, P. O. Box 8502, Crenshaw Station, Los Angeles 8.

22nd Annual International Black-and-White Salon of Photography*, Pictorial Photographers of America, New York City.
On exhibit April 8 to 22 at the Salmagundi Club, 47 5th Ave., N.Y.C.

25th Boston International Exhibition of Photography*, Boston Camera Club, Boston, Mass.
Closes April 9, prints; April 16, slides.
Entry fee $1.50, prints; $1, slides. Four prints and/or slides allowed.
On exhibit from April 29 to May 6, 1956, at Club Galleries, at 351A Newbury Street, Boston.
For information and entry blanks, write Miss Merriam Blodgett, 101 Plymouth Ave., East Milton, Mass.

10th International Western Canadian Salon of Photography*, Manitoba Camera Club, Winnipeg, Man., Canada.
Closes April 10, 1956.
Entry fee and number of prints on request.
On exhibition at the Winnipeg Art Gallery, May 10, 1956.
For information and entry blanks, write J. M. Duncan, 318 Smith St., Winnipeg, Man.

2nd International Color Salon*, Pictorial Photographers of America, New York City.
Closes April 11, 1956.
Entry fee $1, four slides allowed.
On exhibit from May 1 to 4 at the Architectural League, 115 E. 40th St., N.Y.C.
For information and entry blanks, write Min Sapir, 1240 Woodycrest Ave., Bronx 52, N. Y.

Tampa Bay Area Photography Salon, Contemporary Arts Gallery, Pinellas Park, Fla.
Closes April 12, 1956.
No entry fee, four entries allowed.
On exhibition at Contemporary Arts Gallery, 7717 60th St., Pinellas Park, April 17 through May 14, 1956.
For information and entry blanks, write Mrs. Thomas Reesam, Director, Contemporary Arts Gallery, P. O. Box 206, Pinellas Park.

2nd Oakland Stereo Exhibit International*, Oakland Camera Club, Oakland, Cal.
Closes April 14, 1956.
Entry fee $1, four stereo slides allowed.
On exhibit April 30 and May 7, 1956.
For information and entry blanks, write Helen Brethauer, 4057 Masterson St., Oakland 19.

57th Annual Photographic Salon, Portland Camera Club, Portland, Me.
Closes April 14, 1956.
Entry fee $1 plus return postage, number of prints and slides on request.
On exhibition at the Portland Museum of Art, 111 High St., Portland, May 6 to 27, 1956.
For information and entry blanks, write Miss Bernice Breck, Secretary, at the museum.

1st Traveling Stereo Salon*, The Stereo Division of The Photographic Society of America.
Closes April 15, 1956.
Entry fee $1, four stereo slides allowed.
For information, write Ted Laatsch, 406 W. Clovernook Rd., Milwaukee 17, Wis.

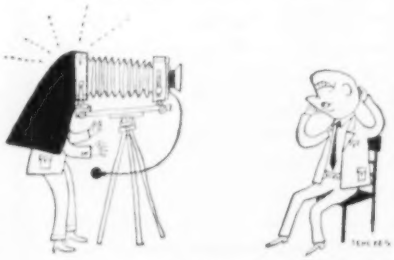
2nd International California Mother Lode Exhibition of Color Photography*, Placer Camera Club, Auburn, Calif.
On exhibition in Auburn, Calif., April 14 and 15, 1956.

11th Columbus International Color and Nature Slide Exhibit*, Columbus, Ohio.
Closes April 15, 1956.
Entry fee $1, four color or four nature slides allowed.
On exhibition at Battelle Memorial Institute, April 21 and 22, 1956.
For information and entry blanks, write J. G. Le Bay, 373 Glenmount Ave., Columbus 14.

1st Queen City International Color Slide Exhibition*, Charlotte Camera Club, Charlotte, N. C.
Closes April 20, 1956.
Entry fee $1, four slides allowed.
On exhibition at Mint Museum, May 3 through 4, 1956.
For information and entry blanks, write Hoyt L. Roush, 715 Johnston Bldg., Charlotte 2.

8th International Color Slide Exhibition*, Berks Camera Club, Reading, Pa.
Closes April 21, 1956.
Entry fee $1, number of slides on request.
For information and entry blanks, write John H. Kline, 312 Raymond St., Hyde Villa, Reading.

1st Oregon Trail International Color Slide Exhibit*, The Forest Grove Camera Club, Forest Grove, Oregon.
Closes May 5, 1956.
Entry fee $1, four slides allowed.
On exhibition in Forest Grove, May 23, 1956; Portland, May 25 and 27; U. S. Veterans Hospital, Portland, June 1.
For information and entry blanks, write Dr. Joseph C. Chamberlin, Salon Chairman, Oregon Trail International Color Slide Exhibit, Box 132, Forest Grove.



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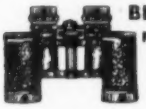

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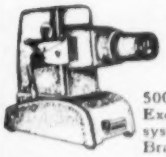

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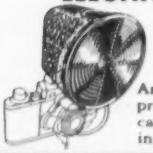

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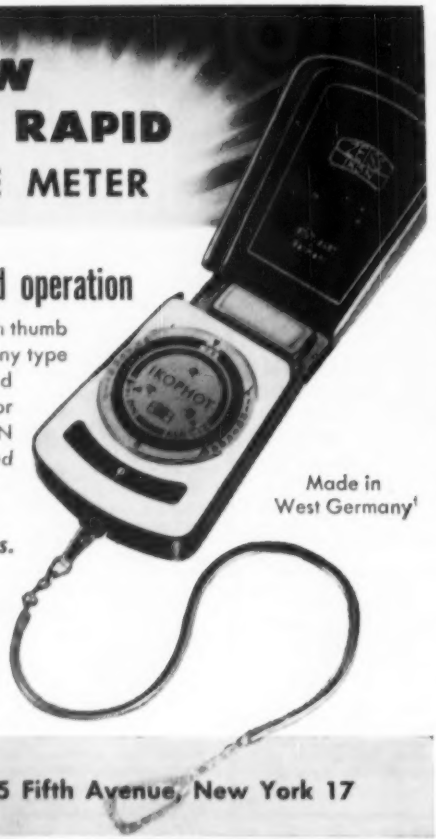

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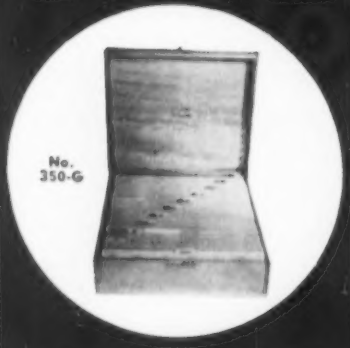

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COLOR CLINIC

by David B. Eisendrath, Jr.

(*Continued from page* 44)

second camera: I still refuse to put myself on the spot. Any camera that makes pictures is a good camera. Does it make pictures as sharp as you'd like? Is it easy to handle, to load, to carry? Periodically I find myself repeating: buy the best camera you can afford that has the features you like and want. Make some tests, of course, before you find yourself thousands of miles from home. I'd also like to suggest that you make arrangements to keep your film dry and cool (the new Anscochrome seems quite stable, however) or to get it returned for processing as soon as possible. One very important accessory for any traveller and one that is often overlooked is a good notebook. If you'll keep a record of what you shoot and how you shot it, you'll not only have good notes for identification, but if you miss some shots you may be able to learn why and correct your mistakes next time. I know it sounds silly, but a notebook well kept is worth many times the trouble.

Printing Filters on Camera Lenses

Some time ago you wrote about binding color filters or Bourges sheets to transparencies to correct or improve the color rendition. If I find that a certain filter gives me the effect I want and wish to make copies of the transparency, is there any advantage in putting the filter over the lens over having it mounted with the transparency? — M. P. R., Birmingham, Mich.

If there were no extraneous light and you made the copy with the transparency over a light box of the correct color temperature, I don't think you'd detect any difference at all, although theoretically there are several factors that might give a minor color distortion effect. Lots of photographers use the Ansco printing filters for this kind of correction: they come in magenta, yellow, or cyan, and in densities of .025, .05, .10, .20, .30, .40, and .50, and they also can be purchased in sets of seven densities in each color. Now, Ansco says these filters are not of "taking" quality because a very small percentage of them may contain striations or small scratches or some such fault. However, I have used them also in front of the lens with no noticeable difficulty. I guess, after all, that the standards involved depend pretty much on the application and the end result desired. However, color film still does not have such critical resolution that a slight aberration would be noticeable. If I were doing very critical work such as color separation or meticulous mapping, I'd be sure to use filters that had the highest possible optical correction.

These printing filters, by the way, come in 4x5, 6⅜x6⅝, and 8x10-inch sheets and are not terribly expensive.—

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Zoom Cameras Are Here

(*Continued from page* 112)

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How to Show Prints

(*Continued from page* 76)

Hangers," is made by Dennison's, 411 5th Ave., New York, N. Y., and is available in most stationery stores in boxes of 20 for about 30 cents. Just be sure to find the exact center of the print as a guide on which to place the hanger (see illustrations for Method No. 1).

The second method combines a good-looking, easily removed frame with a built-in hanging device. The corners from a wooden picture frame are slipped over the corners of the print and held together with rubber bands wound around small tacks. The point at which the rubber bands intersect at the back of the print (see illustrations for method No. 2) is the exact center so that the print can be hung by simply slipping this intersection over a nail or picture hook.

Since you need only the corners, buy a very small, preferably narrow, frame at any dime store. This idea is particularly successful when light-colored frame corners are used on a dark print, (or one having dark edges) and vice versa.

Method No. 3 is to glue narrow wood blocks to the print back so that when hung, the print extends about an inch away from the wall, giving a dimensional effect. Be sure that the blocks of wood are set fairly close together (see illustrations for this method) so that they cannot be seen when the picture is viewed from the side.

The fourth and last method, perhaps involving a little more work than the others, is well worth the effort and will give you a very effective, picture-gallery type of display. You'll need a pencil, hammer, tape measure, nails, and picture frame moulding, cut to any desired length. There is a wide assortment of moulding on the market, ranging from very narrow to extra wide. A medium size is best and may be painted any color to fit in with your color scheme. I usually have the ends of the moulding tapered for a more esthetic, finished effect. The moulding shown in the accompanying illustration was purchased already painted at a picture frame shop at a cost of five cents a foot Probably the best feature of the picture-gallery type of display is that prints (all of uniform size) may be changed by simply sliding the old ones out and the new ones into place.—

CAMERA CLUBS
by Whit Hillyer

(*Continued from page* 52)

mas movie and making animated titles.

Speaking of titling, Chicago's *Edison Camera Club* held a Titling Night for members of its movie section. Club furnished letters, backgrounds, cameras, color film, and the men with the know-how. Participants paid for the film they used. Great idea for any amateur movie aggregation.

Spokane Camera Club's Color Clique has fixed up a working arrangement with the local park department, whereby the latter purchases members' slides. For details on just how this works, drop a line to Joe Collins, West 1740 Riverside, Spokane, Wash.

Photographic Society of Philadelphia puts out a bulletin called "The Philadelphia Photographer." Editor I. C. Cornog is unusually well-versed technically in matters photographic, so that when he satirizes technical papers the results are especially funny. For some time he has run articles purporting to have been written by a "J. Ambrose Trestleweight." A recent issue had a side-splitter of a monograph describing a Trestleweight-inspired experiment in "night photography by natural light." The desired result seems to be "fully developed blacks" in the print, an inky-black picture being considered perfect. On a dark rainy night our researcher gets in bed and aims his camera out a window, "the drawn shade of which I had provided with a pinhole, the lens effect of which was thus superimposed upon that of the excellent system in the camera, affording conditions that ensured maximal definition. . . . Using a cumulative exposure of 2 seconds (by operating first the forward shutter and then the focal-plane shutter—the sequence was reversed without change in result) I obtained negatives of utmost clarity and thinness . . . revealing an admirable transparency that speaks well for the film-base manufacturer. The prints, developed to maximum density at 70°, were of impeccable quality, showing the night sky in a rich-toned black of unsurpassed opacity. . . ." There's more, of course—and I doubt that there's ever been a more competent ribbing of highly involved technical mumbo-jumbo.

At last count the *Metropolitan Camera Club Council, Inc.*, included 63 member organizations. Directory issue of their "Metro News" listed club name, location, meeting day, and president and secretary of each. A useful compendium, indeed.

We'll knock off this month with a few definitions culled from *Flint Lensmen Camera Club's* "Lensmen Letter": *Time Exposure*—slow destruction of film; *Creative*—inventing answers to questions nobody asked; *Positive*—a photographer's attitude before taking a picture; *Negative*—same photog's attitude when looking at finished print; and *Darkroom*—a pitch-black place where photographers try to correct the mistakes they've committed in broad daylight.—

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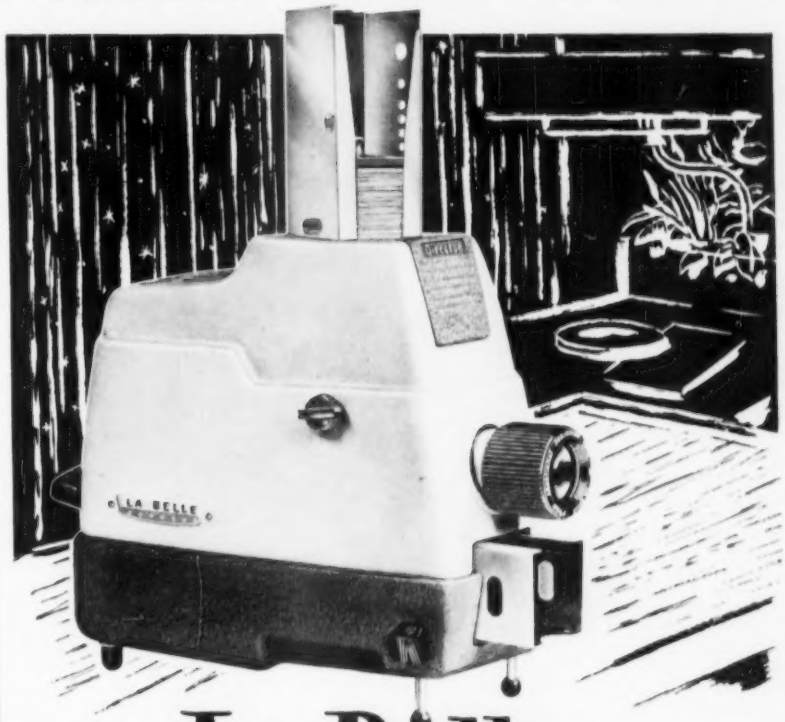

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Photography Then . . . and Now

(*Continued from page 90*)

principles united in the technique which we know today as photography.

The introductory chapters of the Gernsheims' book are devoted to the "prehistory" of photography, when so much groundwork was laid. Even the miniature camera was prophesied, for "camerae obscurae" were disguised in the form of books or even put inside the heads of canes.

The first to attempt to make photographs was Tom Wedgwood, son of the famous potter. He laid flat objects on paper coated with silver nitrate or silver chloride. The unprotected paper, when exposed to light, turned dark, leaving silhouettes of the objects laid on it. Wedgwood, however, could not find a way to fix these pictures, nor could his friend Sir Humphrey Davy, who published the experiments in 1802. This the Gernsheims find a mystery, for the property of ammonia to dissolve silver chloride had already been published, and they conclude that "one cannot absolve so eminent a chemist [as Davy] from blame for his failure to find a fixing agent."

The next to tackle the problem was Joseph Nicéphore Niépce: to him the Gernsheims give the honor of being the inventor of photography. He began experimenting in 1816. From his correspondence it is evident that somewhere around the 1820s he succeeded in taking a photograph with a camera. One of his pictures was shown several times in the nineteenth century, but all track of it was lost in 1898. The Gernsheims followed every clue in an attempt to find it, and at last located not only this first of all photographs, but also two unpublished manuscripts by Niépce about his heliographic technique. The photograph, which the Gernsheims place in the year 1826 on internal evidence, is reproduced in their *History*. The original is a prize in their magnificent private collection of the history of photography.

Niépce's pewter pictures, crude as they must have been to judge from this specimen, were the beginning of the process which his partner, Louis Jacques Mandé Daguerre, perfected as the daguerreotype, and which was bought by the French nation in 1839 and published for all the world to use freely. All the world, that is except England, for, strangely, Daguerre patented his daguerreotype in that country.

Just why he did so remains another of the mysteries of the history of photography. It had dire consequences. Following Daguerre's example, William Henry Fox Talbot, who simultaneously invented negative-positive photography, also patented his process. The result was that nobody in England could take either a daguerreotype or a calotype (as Talbot called his improved process) without purchasing a license from the agents of one of the two inventors. This historical fact, which it is hard for us, so accustomed to use the camera as freely as a pencil or brush, to understand, has been glossed over by previous historians. The Gernsheims quote contemporary accounts to show that these restrictions caused much resentment. Not until 1852, at the earnest public request of the President of the Royal Society and the Royal Academy, did Talbot finally relent to the extent of allowing amateurs to take photographs by his process without paying for the privilege. This relaxation led to the founding of the Photographic Society which, as the Royal Photographic Society of Great Britain, still exists.

Both the daguerreotype and the calotype were made obsolete when, in 1851, a method of making negatives on glass plates was devised by Frederick Scott Archer, "the most admirable character among the inventors of photography," who published his technique freely. This "wet plate" process was the standard technique from the mid 1850s to 1880: a glass plate was flowed with collodion containing a soluble halide. While tacky, it was plunged into a silver-nitrate solution. Thus a silver halide was formed in the collodion film. The result, after exposure and development, was a glass negative which combined the detail of the daguerreotype and the negative-positive feature of the calotype. But it had a drawback: the plate had to be made and processed within a space of time not greater than fifteen minutes. To work outdoors the photographer had to carry a portable darkroom. "The popularity of the collodion process," the Gernsheims write, "should not convey the impression that it had made photography easier. On the contrary, it had become more difficult, but the advantage of extremely delicate detail, improved half tones, and, in particular, increased sensitivity, compensated for the difficulty of manipulation." They recount the adventures of photographers who carried the wet-plate apparatus into the field of battle (Fenton at the Crimea and Brady's operators in the Civil War), on expeditions, and especially in the portrait gallery.

Portraiture was revolutionized with the invention of the multi-lens camera which took up to ten small portraits on one glass plate. The "carte-de-visite" system, so-called because the pictures were the size of a common calling card, became a craze, and its inventor, André Adolphe Disdéri, made a fortune. "It is impossible to calculate the sums which passed through his hands; by 1861 he was reputed to be the richest photographer in Europe, taking in £48,000 a year." (In the purchasing power of the day, this sum was equivalent to a half a million or more dollars.)

But if fortunes were made with the wet plate, the average photographer wanted something less difficult to handle, and hardly had Archer's instruction book appeared than a host of experimenters came forth with techniques which would enable the plate to keep its sensitivity for more than a few minutes. In what the authors call the "culinary period" it was suggested that honey, caramel, raspberry syrup, sherry, beer, vinegar, skimmed milk, tea, coffee, be added to the collodion as a "preservative," that is to retard the crystallization of the silver salts. "The formulas, indeed, often read like recipes

8mm CAMERAS & PROJECTORS

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Bell & Howell 220 Wilshire, 10mm f2.5	$ 49.95	$ 29.50
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Bell & Howell 134-TA, 0.5" f1.4 & 7mm f2.5 & 1.5" f1.9	219.95	149.50
Bell & Howell 172-B, 0.5" f2.5	134.95	74.50
Bell & Howell 172-A, 0.5" f2.5	169.95	84.50
Bell & Howell 172-A, 0.5" f1.4 & 1.5" f1.4	221.95	144.00
Keystone K-25 Capri, 0.5" f2.5	49.95	27.50
Keystone K-35 Olympic, 6.5mm f1.9 & 12mm f1.9 & 1.5" f1.9	121.95	79.50
Keystone K-41 Bel Air, 13mm f2.5	89.50	32.50
Keystone K-45 Riviera, 6.5mm f1.9 & 13mm f1.9 & 1.5" f1.9	161.95	74.50
Bolex H-8 Leader, 0.5" f1.9	298.50	132.00
Bolex H-8 Leader, 6.5mm f1.9 & 0.5" f1.9 & 1.5" f1.9	261.50	185.00
Bolex H-8 DeLuxe, 6.5mm f1.9 & 0.5" f1.5 & 1.5" f1	441.00	255.00
Bolex B-8, 0.5" f2.8	119.50	66.00
Bolex B-8, 0.5" f1.5 & 1.5" f1.5	199.50	129.50
Bolex B-8, 0.5" f1.9 & 6.5mm f1.9	161.50	99.50
Revere 88, 13mm f2.5	72.50	29.50
Revere 99, 13mm f2.8	99.50	41.50
Revere 99, 7.5mm f2.5 & 13mm f2.8 & 1.5" f2.5	181.50	75.50
Revere 8-63, 7.5mm f2.5 & 13mm f2.5 & 1.5" f2.5	119.50	79.50
Revere C-40, 13mm f2.5 & 1.5" f1.9	105.50	69.50
Revere C-44, 6.5mm f1.9 & 13mm f1.9 & 1.5" f1.9	184.50	89.50
Revere C-50, 12.7mm f2.8	49.50	19.95
Dejur DC-1100 Eldorado, 13mm f2.5	54.95	27.50
Dejur DC-600 Citation, 13mm f2.5 & 1.5" f2.5	78.95	49.50
Dejur DC-400 Embassy, 13mm f2.5 & 1.5" f1.9	107.95	72.50
Bauer 88, 0.5" f1.9	69.95	
Bauer 88B Built-in Exposure Meter, 0.5" f1.9	139.95	
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PROJECTORS

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Revere 85 DeLuxe, with case	124.50	$ 49.50
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Keystone K-70C Brightbeam	69.95	41.50
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Keystone K-100 One-Hundred	99.95	54.50
Keystone K-109 Regal	159.50	79.50
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Bell & Howell 200-TA Magazine Camera with 15mm f1.9 W.A. Lens 1" f1.9 & with 3" f1.9 Telephoto Lens	291.95	199.50
Bell & Howell 200-TA Magazine Camera with Ultra High Speed Lenses, 1" f0.95 & 0.5" f1.5 W.A. Lens, & with 3" f1.9 Telephoto Lens	415.95	299.00
Bell & Howell 70-DR with 1" f2.5	261.50	
Bell & Howell 70-DL with 1" f1.9		219.50
Bell & Howell 70-DR with 9.5mm f2.2 & 1" f0.95 & 640mm f5	817.00	595.00
Bolex H-16 Leader with 1" f1.9	269.50	159.50
Bolex H-16 Leader with 10mm f2.2 & 1" f0.95 & 2" f1.4	485.00	365.00
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Revere C-36 with 1" f2.5	159.50	
Revere 26 with 1" f1.4	215.50	129.50
Revere 26 with 17mm f2.7 & 1" f2.5 & 3" f2.5	217.50	99.50
Revere C-38 with 10mm f2.2 & 1" f1.5 & 3" f1.9	269.50	149.50
Revere C-101 with 1" f2.5 Lens	139.50	
Revere C-106 with 1" f1.5 & 3" f1.5	254.50	
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Keystone A-82C Continental	129.50	70.00
Keystone K-161 Belmont	159.50	82.00
Revere 48	162.50	82.00
Wollensak 65	199.50	99.00

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Bell & Howell 285-C	449.95	229.00
Bell & Howell 285-B1 New Academy	529.95	275.00
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Bell & Howell 202-B1	799.00	425.00
Bell & Howell 202-B-3	869.00	495.00

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Contax II f2 Sonnar		79.95
Contax III f2 Sonnar		184.95
Contax IIA f1.5 Sonnar	374.00	163.50
Contax IIIA f2 Sonnar	383.00	184.50
Contax IIIA f1.5 Sonnar	412.00	189.95
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Leica IIIF f2 Summicron	336.00	172.50
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Nikon S2 Nikkor f2	399.00	189.50
Nikon S2 Nikkor f1.4	299.95	162.50
Rectaflex f2 Xenon	350.00	119.95
Rolsey B2 RF	66.50	27.50
Rolsey C22 f3.2 Reflex	99.50	37.50
Kodak Flash Bantam f4.5	56.00	27.00
Kodak Pony B28 f4.5	29.50	14.75
Retina II f2 Xenon		54.50
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Kodak Town & Country f3.5	75.00	44.50
Minox III Chrom and case	139.50	79.50
Minox III	129.50	62.50
Robot II Biotar f2	127.50	49.50
Voigtlander Prominent f2	175.00	125.00
Voigtlander Prominent f1.5	199.50	149.50
Voigtlander Vitessa f2	127.50	73.50
Kodak Signet f3.5 Ektar	75.00	36.50
Robot Royal f1.9 Schneider 8 exp. per sec.	295.00	189.50
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40mm f3.5 Makro-Kilar	229.50	189.50	155.00
58mm f2 Carl Zeiss Biotar Automatic	397.00	254.50	199.00
50mm f1.9 Schneider Xenon Automatic	398.70	259.00	195.00
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40mm f3.5 Steinheil Cassaron	37.50	135mm f3.5 Arco Tele-Colmar pre-set	39.95
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from a cookery book, and did not fail to give rise to many jokes in contemporary photographic literature, a favourite being the gin-and-water process, in which the liquid did not keep long."

An end was put to this experimentation with the invention of the gelatino-bromide process, still used today. With remarkable generosity, an English physician, Richard Leach Maddox, published his unfinished experiments in 1871. He humbly wrote in the *British Journal of Photography*: "As there will be no chance of my being able to continue these experiments, they are placed in their crude state before the readers of the Journal, and may eventually receive correction and improvement under abler hands." Dr. Maddox's hope was fulfilled, and a number of Englishmen went to work perfecting the technique. It seems somewhat unfair to deprive Maddox of the honor of inventing the dry plate simply because others did precisely what he urged them to do. The Gernsheims single out John Burgess as the first to make the dry plate practical. Yet by the same argument, Niépce should be deprived of the honor of *his* invention, for he left it in an entirely impractical form at his death. The Gernsheims credit Hannibal Goodwin as the inventor of roll film. But they later state that because his patent claim, filed in 1887 "was not specific enough for the patent examiners . . . the patent was not granted until September 1898." There are strong grounds for arguing that Reichenbach, a chemist in the employ of George Eastman, was unaware of Goodwin's work when he perfected the practical material Eastman marketed in 1889.

The book is by no means limited to the detailed and admirably documented account of the technological development of photography. The Gernsheims discuss the use of the camera both as a means of communication and as an art. They deliberately omitted discussion of scientific applications of photography, or the history of color photography. The text is lavishly illustrated with line cuts from old manuals, cartoons, and documents, and the plate section presents a wealth of half-tone reproductions mostly made from gems in the Gernsheim collection, the largest in England in private hands.

The book will take its place as a standard work, supplementing, amplifying, and often correcting previous work of Eder, Potonniée, Stenger and the present reviewer. But beyond its value to students of the history of photography, it will surely interest, entertain, and prove useful to everyone who uses a camera or works with photographs.—

Subminiatures

(*Continued from page* 62)

going from 1/10 to 1/400 second. The shutter release is quite delicate and only a slight amount of pressure is needed to trip the noiseless shutter. Picture size is 10x10 mm and focusing is from 12 inches.

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5 x 7	SWGL	#4	200 sh.	3.75
5 x 7	Auto Pos.		250 sh.	1.95
8 x 10	SWSM	#1, 2, 3, 4	200 sh.	3.95
8 x 10	DWSM	#0, 1, 2	100 sh.	2.50
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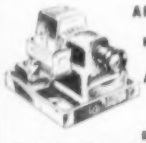

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either perforated or unperforated, giving 30 exposures 12x17 mm. This camera has a unique cover arrangement: opening the cover winds the film transport so that three exposures can be made before the film has to be wound again. When the cover is open, it is used as a handle. The lens is a six-element 25-mm f/1.9 Galileo-Esamitar, focusing from 20 inches. The shutter operates from ½ to 1/1000 second and the camera, which weighs ten ounces, measures 4½x2½x1 inch.

The techniques of subminiature photography are extremely critical. From exposure to print, every step must be done carefully, with complete attention to details. The major problem when taking the picture is camera movement, due to the extreme lightness of the camera. Unless care is taken during exposure, camera movement will tend to negate the sharpness which short-focal-length lenses make possible. All other things being equal, a 25-mm f/2 can be made sharper than a 50-mm lens of the same speed, but this advantage is lost if there is camera shake. A skilled 35-mm photographer can get an acceptable picture with a hand-held exposure of ⅕ second: with a subminiature, 1/50 is the slowest acceptable speed and 1/200 a minimum safe speed. Using a tripod would defeat the prime advantages of the subminiature, lightness and compactness, so use of natural supports such as trees, posts, etc., whenever available is highly recommended.

When making a hand-held exposure, be as relaxed as possible. The "death clutch" while holding your breath is the worst, as every vibration is transmitted to the camera. The shutter release should be squeezed rather than pulled. With a little care, it is possible to get sharp 4x5 prints.

Processing subminiature film can be fun, although every operation requires far more care and attention to detail than larger-film processing. The equipment used is so small that you get the feeling you've grown twelve feet tall. The Minox developing tank, for example, uses only 1½ ounces of solution. Dust, always an enemy of photography, is even more destructive here, as a speck of dust which might be invisible on 4x5 can all but cover a subminiature negative. Every piece of equipment should be dusted carefully before use.

Temperature is another critical factor. Maintenance of constant temperature within very close tolerances is even more important with subminiature work than with larger negatives, since temperature changes increase graininess and the dangers of reticulation. A great convenience in processing is Panthermic 777 developer, which can be used at room temperature, simplifying the problem of temperature control for the hypo and wash water. By using solutions at room temperature, the difference between the temperature of the solutions and the drying area is sharply reduced, removing any danger of reticulation which, slight though it may be, could degrade image quality and definition.

Processing equipment specially designed for subminiature work is supplied by the camera manufacturers. Minox puts out a handy developing kit which includes developer, shortstop, fixer, and wetting agent, packaged in dry form in quantities necessary to process one roll in a Minox tank. The entire kit contains enough supplies to develop fifteen rolls of film and measures only 5x7x1. It can be used with other tanks by using enough packets to fill the tank completely. The whole kit, plus tank, accessories, and camera can be carried in a leather toilet-kit bag.

Exposure and development must be considered together if good results are to be obtained. Overexposure or overdevelopment will cause loss of definition and grain. For best results, use manufacturers' film ratings and underdevelop by about 15%. Some experimentation may be necessary to get proper times for your camera-and-meter combination. Subminiature negatives should be quite thin and soft enough to print on #3 paper. If a softer grade is required, it is a sign that the negatives have been overdeveloped.

A worth-while skill to acquire for subminiature processing is inspection development. It will require considerable experience to use properly. The image is too small to look for details within the frame so any judgment must be made on the basis of over-all density. Properly developed film should look fairly dark under a series 3 (green) safelight with the highlights almost black. The backing will disappear in the hypo and the final appearance of the film will be much thinner than a look under the safelight would lead you to believe. If you stop development when the film looks right for printing, it will be too thin. Try not to inspect film more than twice during a development period and do not hold the film too close to the safelight. With experience, it will be possible to inspect once and be able to judge the amount of any further development needed.

The film should be treated as gently as possible. Do not use a sponge or cotton to dry film but bathe it in wetting agent and let it dry in a dust-free place. All the precautions which must be exercised with miniature film become even more important with subminiature negatives, the area of which is less than the size of a thumbnail.

Enlarging may be done on standard equipment. A half-inch lens on a 4x5 enlarger will give enough magnification for prints up to 11x14. Enlargers for smaller sizes with shorter posts may require a 15-mm lens. Glass carriers can be used if the negative is properly masked to prevent white light from reaching the paper. The glass must be kept scrupulously clean, checking the carrier after each negative and recleaning if necessary. A glassless carrier is best although not all manufacturers supply carriers in subminiature sizes. They are obtainable from some companies on special order, however. Conventional enlargers used with subminiature negatives have two disadvantages. The first is the low level of illumination available at such high magnifications, necessitating extremely long exposures. The second is the difficulty of using focusing mechanisms designed for normal (2-inch and larger) lenses with subminiature lenses (15 to

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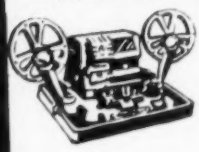

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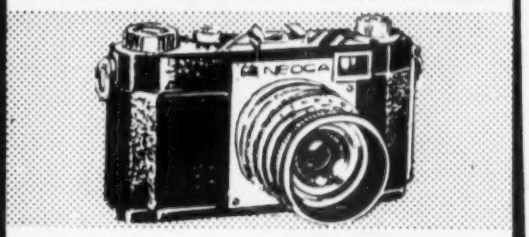

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25 mm). The adjustments are usually not fine enough for the slight changes needed in the limited focusing range of short-focal-length lenses where an eighth of an inch may be the difference between sharp and blurred enlargements. If any serious work is planned with subminiature cameras, it would be wise to use enlarging equipment specifically designed for the field.

All three manufacturers supply enlargers as accessories for their cameras. The GaMi and Minox enlargers are high-priced, superbly engineered machines supplied complete with lenses. The Minicord is a more economical model designed to use the Minicord camera lens and focusing system. It strips down for carrying and storage in a polished hardwood case. When using this unit, the lens of the camera should be stopped down to at least *f*/4.

Because of the greater magnifications involved when enlarging subminiature negatives, longer exposures will be the rule rather than the exception. To keep exposure times to a minimum, use high-speed papers and expose with the darkroom safelight off to prevent any possibility of fogging the paper.

A wide variety of film is available for the subminiature camera, either in factory loads or in bulk which can be loaded into cassettes. They range from high-contrast copy films to superspeed pan to color film. If bulk film is used, the cost of each negative is about 1/7 of a cent, since a hundred feet of 16-mm, enough for about 3000 exposures, is $4.00.

Minox users are confined to factory-loaded film, but the Minicord and GaMi supply film-loading equipment as accessories for the user who loads his own. The choice of film depends, of course, on the pictures desired. For general work under good light, the slow, thin-based, fine-grain films give the best results, with extreme fine grain and high resolution to withstand huge enlargements. For candid work, superspeed films (ASA 200) are "musts."

All manufacturers offer slide projection equipment including projectors and mounts. Color is the easiest way to enjoy the results of your subminiature camera, but in this field too, everything must be done with care and cleanliness. Before mounting transparencies, clean them carefully, removing dust with an electrostatic brush. Cardboard mounts are easier to use but they offer less protection. It is also possible to use filmstrips but this is the most dangerous for the life of your pictures.

There are almost as many accessories for subminiatures as for their 35-mm brothers, but it is best to keep things as simple as possible. The whole advantage of these cameras is their lightness, ease of operation, and unobtrusiveness. Most of them are constructed so that basic accessories such as the lens hood are built in.

Subminiature photography offers a big challenge but if you are capable of mastering the exacting technique required, you can get pictures which would be impossible with any larger cameras. The effort may be well worth-while.—■

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- 400 ft. Film Capacity

Postage and Ins. 50c

2X TELEPHOTO LENS ARGUS C3

List $19.95 — **12.95**

- Screws into Regular Lens
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75mm F4.5 Voigtlander Voigtar Lens

In Prontor Self Timing Shutter

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- Fine Corrected Anastigmat
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200 ft.	Compl. Set 300 ft.	400 ft.	All Alum Const	Post. & Ins 30c
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2x2 33L Viewlex Projector

List $67.00 — **39.95**

- Automatic Slide change
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on your present 2x2 projector

2x2 Revere 888 Projector

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- Fully automatic
- Complete with case + seven magazines
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Latest model with automatic Diaphrams and Penta Prism

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BFi No. 30 prevents fading, discoloration—prints take even, true color toning. Actual aging tests—on prints and film treated as recommended—prove no other hypo neutralizer made can offer such permanent freedom from deterioration. BFi No. 30 leaves no sulphite complexes that cause deterioration with age. Try it, soon!

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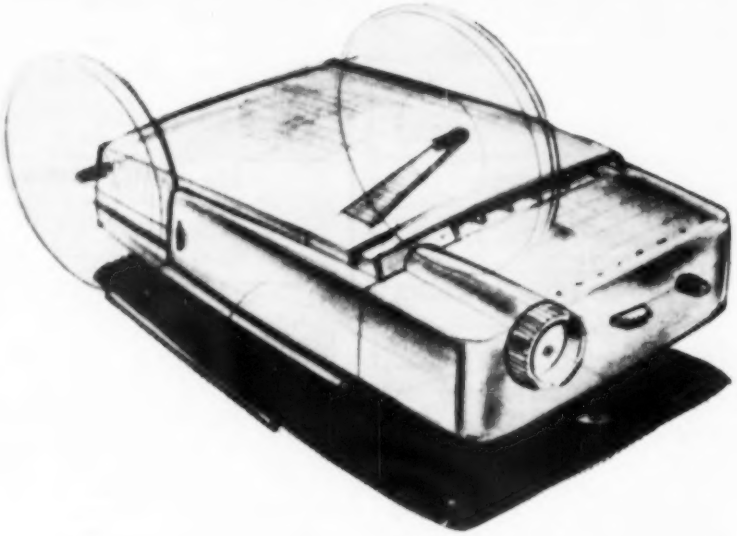
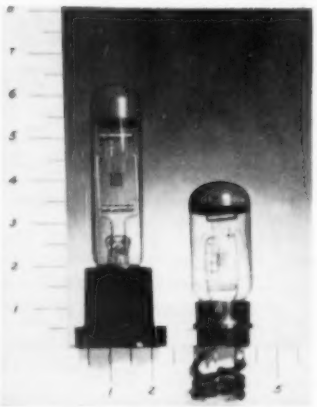
NEW LAMP BRINGS MODERN DESIGN TO PROJECTOR FIELD



Streamlined movie projector using Tru-Focus lamps. Small size, horizontal burning position, makes compact design possible.



Comparison of a standard projection lamp with Tru-Focus (right) shows compact design of the new lamp, achieved without sacrifice of illuminating efficiency.

A NEW projection lamp, the Tru-Focus, has been announced by Sylvania Electric Products. Measuring only four inches from top to socket, this new lamp is said to provide a more constant level of illumination over its useful life. It will also allow a better alignment between the light source and the optical system of projectors, as well as opening new possibilities for projector design by virtue of its ability to be used in a horizontal position.

The Tru-Focus lamp uses a special type of socket which automatically positions it in perfect alignment with the optical system. The socket has eighteen metal fingers to hold the lamp securely in any position, while a key built into the base of the lamp serves to position it properly.

These lamps feature a special long-grain, non-sag tungsten filament which enables the lamp to be used either in the conventional base-down (vertical) position or in a horizontal position. A grid screen built in the lamp directs air flow inside the bulb to prevent the glass from blistering and also to collect a large part of the lamp-darkening particles given off by a burning filament. This serves to maintain the rated light output over a longer period of time. The ceramic blue top is said to be impervious to scratches, peeling, and blistering.

The effect of this new lamp will be to allow new, more streamlined designs for both movie and still projectors. This field has lagged in the improvement race that is photographic manufacturing because standard projector-lamp designs limited designers to high, vertical models to allow base-down burning. This lamp, designed by Sylvania engineers after lengthy conferences with photographic manufacturers is an answer to the problem of modern design in photography. The sketch at the top of the page shows some of the possibilities in that field for smaller, lighter, and more efficient projectors. It is expected that the first newly designed models incorporating the Tru-Focus lamp will be on the market by the end of the year. Tru-Focus lamps, available in 300- and 500-watt sizes, with an average life of 25 hours, will be priced at $3.25 and $4.25 respectively.

Sylvania does not recommend using the new bulbs in existing models of slide and movie projectors because of difficulties in aligning the lamp with the optical system due to the considerable difference in height between new and old lamps.—

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NEW LOW PRICE
7" f2.5 Coated
AERO EKTAR

Now with diaphragm and hard coated optics. Lens can be adapted to fit any Speed Graphic, Press & View Camera, Leica, Contax, Exakta, all types of motion picture cameras, as well as special application. (Custom made adapters available, prices on request). Gov't cost of lens was over $300.00.

BRAND-NEW. 58.50
1.75 post & ins

Precision focusing mount for all single lens reflex (35mm x 2¼ x 2¼) 19.50

Bed Brace & Tubes for 4 x 5 press 17.95

COMPLETE HOME MOVIE LENS COMBO

2 Lenses for the Price of One
1½ f 1.9 TELE LENS
7mm f 2.5 WIDE ANGLE
FOR ALL 8mm CAMERAS

Jet fast Tele lens in precision focusing mount. Click stops; coated Optics. Powerful 3x magnification. Wide angle permits ultra view. $75.00 Value.

Both only
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Leather cases ..... 65¢ ea. post & ins ..... 75¢ ea.

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Size	Type	Surface	Grade	Quan	Price
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5x7	Industro	SWGL	F4	100	1.95
8x10	Aero	DWSM	1, 2, 3,	100	2.00
8x10	Contact	SWGL	F0,F2,F3,	100	2.75
10x10	Contact	SWSM	1, 3	100	2.00
10x10	Ad Type	LWSM	3, 4, 5	250	2.50
10x20	Contact	SWSM	1, 2, 3, 4	100	3.20
20x24	Contact	SWSM	1, 2, 3, 4	50	5.25

SW GL Single Weight Glossy
SWSM Single Weight Semi-matte
DWSM Double Weight Semi-matte
Paper Prices F.O.B. N.Y. Add Postage

MOVIE SCREENS

*30 x 40 inches	(2-1/2ft x 3-1/3ft.)	6.95
*40 x 40 inches	(3-1/3ft x 3-1/3ft)	8.95
**37 x 50 inches	(3ft x 4-1/6ft.)	10.95
**50 x 50 inches	(4-1/6ft x 4-1/6ft.)	13.45

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8x10	Brovira	SWGL	3	100	3.29
8x10	Halbrome	DWSM	EE3	100	3.89
8x10	Enlarging	SWSM	2, 3, 4	100	2.69
8x10	Varigam	DWSM	BT	250	8.25
11x14	Halbrome	SWGL	F4	50	2.79
11x14	Halbrome	DWM	1, 2, 3, 4	50	3.50
11x14	Kodabromide	DWGL	F4	50	3.50
11x14	Brovira	DWGL	1	100	3.95
11x14	Brovira	DWGL	FE1	100	3.95
11x14	Enlarging	DWSM	EE1	50	2.50
11x14	Varigam	SWSM		100	7.25
16x20	Halobrome	SWFL	2	50	6.25
16x20	Halobrome	DWSM	EE1	50	7.25
20x24	Enlarging	DWSM	1, 2	50	7.50
40x30"	Enlarging	DW Lstre	E4	roll	5.95
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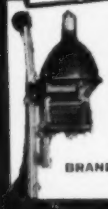

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Complete with 6½" f6.3 lens. Long Bellows draw, tilt and revolve head. Reg. value over $100.00. Our Special—

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100 ft Daylight. Guaranteed 'til Jan. 1957, each 3 for 20.89
FREE processing by Kodak
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Get those startling unusual effects. 10 rolls 25¢ post
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120/620 Daylight or Tungsten. Hi-speed ASA 32 Min. order ..... 25¢ post
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BULK FILM LOADER

Load your own 35mm Cartridges. Value 6.95. New ..... 45¢ post
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4x5 ANSCO COLOR

Daylight or Tungsten.
10 sheets ..... 35¢ post
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2¼x3¼ FILMPACKS

Plus-X 3 for
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Choose Tri-S Pan, Ortho X or Infra Red.
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100 ft—Save money. Each. Guaranteed 'til Dec. 1956 .....
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100 ft of fascinatin' film. Terrific value.....
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10" speaker 750 watt bulb. $400.00 value.

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Dallmeyer. Complete with iris diaphragm. Can be adapted to almost all types Cameras.
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16x50 Genuine Prism BINOCULARS

Coated optics & prism. Individual eye focusing.

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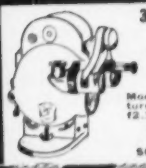
*Plus 10% FET Case 6.95

35mm PRO MOVIE Bell & Howell EYEMO



Model Q, Spider turret with three f2.3 lenses, used.

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ANNOUNCING THE 1956 POPULAR PHOTOGRAPHY $25,000.00 INTERNATIONAL PICTURE CONTEST

In United States Savings Bonds (Series E) plus Trophies and certificates of award

SEPARATE PRIZES for Black-and-White, and for Color.

NO LIMIT on the number of entries from any contestant.

TRAVELING EXHIBITS to be shown in principal cities of the world.

RULES OF THE CONTEST

1 The Contest is open to all persons, except employees of POPULAR PHOTOGRAPHY, Ziff-Davis Publishing Company, and their families. CONTEST OPENS MARCH 6 and CLOSES JUNE 30, 1956.

2 **An entry fee of $1.00 must accompany each package** of pictures submitted. There is no limit on the number of pictures included in each package, or the number of packages submitted, but each package must contain its own entry fee. Entry fee may be paid by check or money order. Postage stamps not acceptable for entry fee.

3 There will be a Black-and-White Division and a Color Division; each will be judged separately. Any number of black-and-white prints, color prints, or color transparencies may be submitted by any entrant provided each package is accompanied by an entry fee of $1.00, in accordance with Rule 2, and in conformity with the following regulations: It is advisable to submit color prints and/or transparencies separately from black-and-white entries. There are no restrictions as to subject matter or size in either Division, although 5x7 or larger prints are preferred.

4 Prints may be either mounted or unmounted; this is optional with entrants. Be sure to print name and address on mounts of both black-and-white prints and color transparencies.

5 Pictures which have been published in, or accepted for publication or are under consideration by any photographic magazine other than POPULAR PHOTOGRAPHY or PHOTOGRAPHY ANNUAL are not eligible. Publication in any other medium does not make prints or color transparencies ineligible.

6 Each print or transparency must have secured to it a filled-in entry blank as provided here, or facsimile thereof. Please print or typewrite the information requested on the blank. Additional entry blanks are obtainable from photo dealers and finishers, or direct from the Contest Editor of POPULAR PHOTOGRAPHY if request is accompanied by a self-addressed and stamped envelope.

7 All prints and transparencies will be held for judging after June 30, 1956, and no entries will be returned until after announcement of the winners has been published in the December, 1956, issue of POPULAR PHOTOGRAPHY. Pictures which did not win prizes will then be returned as quickly as possible, provided that self-addressed and stamped envelope, or addressed label and postage were contained in the same package in which each lot of entries was sent. DO NOT SEND POSTAGE

SEPARATELY for return. The Contest Editor cannot enter into correspondence of any kind regarding entries, and no entry will be acknowledged unless accompanied by self-addressed, stamped post card.

8 Prize-winning pictures, including all reproduction and promotional rights, become the exclusive property of POPULAR PHOTOGRAPHY. All entrants who win prizes will be required to furnish original negatives before prizes are given, as well as model releases where necessary. All prize-winning negatives become the excluisve property of POPULAR PHOTOGRAPHY.

9 The contest will be judged by the editors of POPULAR PHOTOGRAPHY under the chairmanship of Mr. B. G. Davis, President, Ziff-Davis Publishing Co. Decision of the judges is final.

10 Address all entires to Contest Editor, POPULAR PHOTOGRAPHY, P. O. Box 18B, Mount Vernon 10, N. Y. Final entries must be postmarked not later than midnight of June 30, 1956. Prize winners will be announced in the December, 1956, issue of POPULAR PHOTOGRAPHY. While exercising the utmost care in handling entries, POPULAR PHOTOGRAPHY assumes no responsibility for loss of or damage to Contest entries nor for loss of entry fees. No entries will be acknowledged. If evidence of delivery is desired by the entrant it is suggested that package be sent by registered mail, return receipt requested.

11 Prizes will be United States Savings Bonds, Series E. Values of prizes listed are maturity values of the Bonds. Prize winners who are not United States citizens will receive, in lieu of Bonds, a check in the amount of the purchase price of the Bond award.

12 FOREIGN ENTRANTS: The foregoing rules apply to all entries, except that prints and transparencies submitted by persons residing in foreign countries are eligible for consideration only if accompanied by an amount sufficient to cover entry fee and return postage. This can be sent in the form of Postal Money Order, Bank Draft, or International Reply Coupons (in sufficient number). These Coupons are sold by most post offices throughout the Universal Postal Union and when properly rubber-stamped by the issuing post office each Coupon is exchangeable (as indicated in several languages on each Coupon) for a "postage stamp or postage stamps representing the amount of postage for an ordinary single-rate letter destined for a foreign country." Thus, each International Reply Coupon can be exchanged in the United States for postage in the amount that would be used for a single-rate letter (not air mail) to the country where the Coupon is purchased.

●

USE THIS ENTRY BLANK

Each one of your entries must be accompanied by a filled-in entry blank provided here, or a facsimile of it. Your photo dealer or your finisher has additional blanks on hand should you need them, or you can obtain entry blanks from the Contest Editor of POPULAR PHOTOGRAPHY. Your request for more blanks should be accompanied by a self-addressed stamped envelope.

●

**Values given are maturity values of the bonds. Each prize will be accompanied by a certificate of award suitable for framing. This certificate is printed on fine parchment stock and will bear the hand-lettered name of the winner.*

280 PRIZES*

BLACK & WHITE	COLOR	TOTAL
1st $2,000 U.S. Savings Bond, plus Trophy	1st $2,000 U.S. Savings Bond, plus Trophy	$4,000
2nd $1,000 U.S. Savings Bond, plus Trophy	2nd $1,000 U.S. Savings Bond, plus Trophy	$2,000
3rd $750 U.S. Savings Bond, plus Trophy	3rd $750 U.S. Savings Bond, plus Trophy	$1,500
4th $500 U.S. Savings Bond, plus Plaque	4th $500 U.S. Savings Bond, plus Plaque	$1,000
5th $250 U.S. Savings Bond, plus Plaque	5th $250 U.S. Savings Bond, plus Plaque	$500
50 Prizes, U.S. Savings Bonds, each $100	50 Prizes, U.S. Savings Bonds, each $100	$10,000
70 Prizes, U.S. Savings Bonds, each $50		$3,500
100 Prizes, U.S. Savings Bonds each $25		$2,500
		GRAND TOTAL $25,000

In the event of a tie, duplicate prizes will be awarded.

FINAL CLOSING DATE: JUNE 30, 1956

USE THIS ENTRY BLANK (PLEASE PRINT) 1956

Contest Editor, POPULAR PHOTOGRAPHY
P. O. Box 18B, Mount Vernon 10, N. Y.

Please enter the enclosed picture in the POPULAR PHOTOGRAPHY Picture Contest for 1956. It is submitted in accordance with the rules, which I have read.

Name.....

Street.....

Town.....Zone.....State.....

Picture Title.....Have You a Model Release?.....

Where Made.....

Camera Used.....Lens.....

Exposure: Lens stop.....Shutter Speed.....

Film Used.....Filter.....

Lighting.....Paper.....

Published before?.....Where?.....

CAUTION: Be sure to include your entry fee of $1.00 in the package containing your entries (See Rules 2 and 3). If you want your pictures returned in the event you do not win a prize, be sure to include adequate return postage.

PRIZE WINNERS ANNOUNCED: DECEMBER 1956 ISSUE

SIX ANNUALS —*a book review*

The world supply of good pictures seems inexhaustible

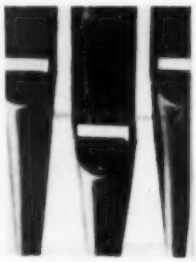
If anyone still doubts that photography is the universal folk art, he need only look at the magazines and annuals that pour from presses all over the world. Photographs have indeed become as numerous as words, and they are recording folkways and history more accurately and vividly than ever did words in the pre-Daguerrean past.

I exaggerate a little, but look: In the past few months the following annuals have piled up on my desk: the *1956 U. S. Camera* ($6.95); *Asahi Camera Annual 1955* (Asahi Shimbun Publishing Company, Tokyo); the *1955 International Photographic Salon of Japan* (Asahi Shimbun Publishing Company); *The German Photographic Annual 1956* (American Photographic Book Publishing Co., New York, $7.50); *Subjective Fotografie 2* (Rayelle Publications, Philadelphia, Pa., $7.95), and the 1956 British *Photographic Year Book* (*Photography* Magazine, London).

In volumes such as these presumably the world's best photographs are preserved. I said "presumably," for certainly, whatever the intentions, the pictures aren't all first rate. But the wonder is that there are so many good ones. As editor of the world's largest-selling annual, I wonder, each year, sometimes sleeplessly, where all the pictures will come from. But come they do from the four corners of the globe. The output is prodigious. Would there be enough good paintings each year to fill even one volume the size of our own PHOTOGRAPHY ANNUAL? I doubt it.

Yet here is *U.S. Camera* big and as packed as ever with photographs, probably three or four hundred in all. It is sprawling, unpredictable, not as brash as usual—an odd mixture of excellent and bad pictures, beautiful and utilitarian ones. This year it features a big (68 pages) biographical picture tribute to Edward Steichen, whose crowning achievement, *The Family of Man*, proved in 1955 to be the most dynamic photo exhibit of all time. There are also brief portfolios by W. Eugene Smith, Wynn Bullock, G. E. Kidder Smith, Brett Weston, Richard Avedon, and Leon Levinstein, none of them extensive enough to give fair impressions of the photographers involved.

Over in Japan the picture output continues at an unbelievable pace. It is just possible that Japan can now boast more photographers capable of competent work than any other country in the world. Certainly there is a dynamism and excitement about Japanese photography today that springs directly from its vital source—life in modern Japan. The people are turning their cameras on themselves, discovering and enjoying the freshness and vitality of their own post-war resurgence. Although this year's *Asahi Camera Annual* is not as successful as last, it is still remarkable in that it is *all* Japanese with no imitative taint of Western pictorialism.



On the other hand the 1955 edition of the *Japanese International Photographic Salon* (also published by Asahi Shimbun Publishing Company) preserves the worst of photographic tradition. Two thirds of the volume is devoted to old-fashioned pictorialism from many countries, which means self-conscious, contrived, arty, and dull pictures. But the whole thing comes suddenly alive on page 81, the opening of the Japanese section, and stays alive to the end on page 177. Before the war the Japanese were pictorialists, too, but the cruel realities of war shocked them out of that prissy cocoon.

The *1956 German Photographic Annual*, a revival of the prewar *Das Deutsche Lichtbild*, shows that Germany has at last broken with the past. One of the world leaders so far as photographic equipment is concerned, Germany's photographers since the war have tended to remain in the stuffy vineyards of con-

(*Continued on page* 188)

CLOSEUPS ARE SIMPLE
and inexpensive, when you buy your closeup accessories from Spiratone, the only firm specialized in low-cost closeup photography equipment.

GOOSENECK LIGHT ATTACHMENT $5.95
With C clamps, fits copy stand or enlarger pole. 2½" bullet reflectors. $1.60 add'l. *Sh. Wt. ½ lbs.*

DELUXE COPYING STAND
Designed by us for use in conjunction with closeup lenses, extension tubes, bellows attachments, to complete with a moderate investment, your closeup and copying equipment. Strong enough for a 4x5", yet compact in storage (two-piece post) and equally well suited for copying, medical, scientific work and movie titling. Camera bracket permits centering of camera over subject. 15x18" baseboard is very practical for large originals, 1½" diameter pole is 38" high. *Shipping Weight 11 lbs.* $9.95

FREE with orders over $3.00, or send 25c for CLOSE-UP DICTIONARY...Contains all needed tables, too.

EXTREME CLOSEUP LENSES
can be used with any camera—with the greatest of ease and with no extra accessories. You can get as close as 8" with a Plus 4, 7" with a Plus 5, 5½" with a Plus 6, 3½" with a Plus 10. You can use two extreme closeup lenses, with a double retaining ring, for even more extreme closeups. With a Plus 5 lens, you can fill the complete 35mm frame when reproducing a postcard; a Plus 10 lens is just right for insects, stamps and coins. Extreme Closeup lenses make macrophotography possible with a tiny investment. All exc. Plus 10, mounted in metal rings.

	Ser V	Ser VI	Ser VII
Plus 4	1.75	2.00	3.25
Plus 5	1.95	2.30	3.75
Plus 6	2.25	2.75	4.25
Plus 10	2.65	3.25	5.25
Dbl. Ret. Ring	.85	.95	1.50

CLOSEUP (Portrait) LENSES
bring within every photographer's reach subjects which would be too small if photographed at the regular 3 ft. closest camera setting. Head and shoulder portraits, children's pictures, copy work—a whole new field of picture taking. All Closeup Lenses are mounted in metal rings. Deluxe lenses, made by nationally famous manufacturer, have diopter power engraved on rings.

	Reg.	Deluxe
Ser. IV		1.15
Ser. V	1.00	1.39
Ser. VI	1.25	1.59
Ser. VII	2.00	2.98

Plus 1 focuses from 38" to 20", Plus 2 from 20" to 13", Plus 3 from 13" to 10"—for versatility, you want set of all three Closeup Lenses. *Shpg. Chg's. 1-4—10c.*

6-PC. EXTENSION TUBE SET
for Kine Exakta, Exa. This set contains two precision-fitted brass adapters and four tubes, 5mm, 15mm, 30mm and 45mm, providing the greatest possible range of closeup work from a 1:4 reduction to a 2:2 magnification ratio. *Shipping Charge 35c.* 6 pc. set but with one FOCUSING TUBE from 40mm to 55mm, alone a $10 value. Complete set $11.50. Economy 5-pc. set, 3 tubes, 2 adapters $4.98. $7.95

4-PC. EXTENSION TUBE SET
for Praktica, Praktiflex FX, Contax, S, D, DA, Pentacon. $6.95
This exceptionally well-made set includes in addition to the usual 5mm, 15mm and 30mm tubes a 45mm tube, thus permitting up to 2X magnification, when the complete set is used: a tiny object, ½" x ¾" can be made to fill the entire 35mm negative or transparency! *Shipping Charge 35c.*
4 pc. set, but with one FOCUSING TUBE, alone a $10.00 value, increasing maximum extension to 100mm. $9.95
Economy 3-pc. set $3.98
LEICA, CANON 4 PC. EXT. TUBE SET, INCL. ONE FOCUSING TUBE, $16. VALUE $10.75

PROXISCOPE SR.
WITH ELEVATING ACTION $4.95
An absolute must for any kind of closeup and copy work. Doubles up as perfect elevating attachment, with both tripod and camera fittings for horizontal as well as vertical fastening of camera. *Shpg. Chg 35c*
• A deluxe version of the most useful camera accessory for every practical photographer
• Permits minute adjustments in a 4½" range on its geared track, with a positive lock at any desired point

FOLDING BELLOWSCOPE
$14.95 ppd.
Available for Leica, Canon, Kine Exakta, Exa, Praktica, Praktiflex FX, Contax S, D, DA, II (a), III (a), Pentacon, Nikon
The most useful of lens-to-camera closeup accessories. It weighs only 5 oz., has fine leather bellows and a geared track with a positive lock. A sturdy accurate frame assures proper alignment. An extension range up to 5" is provided, with magnification factors engraved on the track. *Shpg. Chge. 45c.*
FREE with FOLDING BELLOWSCOPE: PROXISCOPE JR. a $4.00 value.

GROUNDGLASS FOCUSER
for virtually ALL 35mm Cameras
Here is one of the most useful accessories ever made for owners of Argus, Contax, Canon, Vitessa, Contessa, Edixa, Retina, Signet—just about all 35mm cameras with removable backs! Focuser fits snugly into film plane, instantly showing exact, parallax-free image you will record on film! Wonderful for checking rangefinder and viewfinder accuracy, determining composition and depth of field, focusing and composing for closeups! Precision-made with ballbearing fittings, the Focuser is instantly removable, too! $4.95 ppd.
COMBI. OFFER for ARGUS C3 only Focuser and 3 ext. tubes 7.95

Postage and insurance MUST be prepaid—overpayment is credited. Everything listed is brand new, fully guaranteed against defects. 25% deposit on C.O.D.'s.
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FOR THE DARK ROOM

SAVE 50% ENLARGING LENSES

We are proud to present three unusual values in brand new, coated, color-corrected, anastigmatic lenses, specially constructed to give corner to corner sharpness in enlarging—at prices half and less than those you'd expect to pay for such sharp-cutting lenses. *Sh. Ch. 15c*

2" f:3.8, Leica thread, for 35mm	$7.95
3½" f:4.5, clickstops, for 2¼x3¼", 2¼x2¼"	9.95
5½" f:4.5, clickstops, for 4x5	19.95
Precision Flange for easy fitting to lensboard	1.25

ELECTRIC 2-SURFACE DUO-DRIER

1956 MODEL "C"

$8.89 WITH 2 12x17 HEAVY DUTY FERROTYPE PLATES AND STAND

Yes, Spiratone does it again! A complete, ready-to-use, double surface drier with a capacity of 4 8x10 or 36 2½x3½ prints. Singleweight or doubleweight, glossy or dull finish—simply constructed, yet as efficient as units costing several times as much. Works on AC or DC. *Shipping Weight 18 lbs.*

FREE with dryer: 12 x 15" Autotilt Print Washer!

ALL METAL 11 x 14 EASEL

INCLUDING FOOTSWITCH

$7.69

- Solid frame guide on 4 sides for proper alignment.
- Spring steel masking bands calibrated in inches and mm.
- Adjustable for all sizes from 1x1" to 12x15".
- White enameled base.

Extra sturdy (net weight 4 lbs.!) Plug enlarger cord into foot switch and you are ready to dodge, vignet and fully control your 'blow-ups'. *Combined Ship. Wt. 6 lbs.*

8x10 Enlarging Easel, same construction as above, with footswitch. $4.98

ENLARGING TIMER

$6.95

60 sec. range, with second markings. Current shuts off automatically at end of desired time interval. Built-in lock holds knob at desired position, until toggle is released. Adjustable stop for repeat exposures. Manual operation for focusing. Enlarger or printer plugs right into receptacle on cord timer. *Shpg. Chge. 30c.*

AUTOTILT PRINT WASHER

All metal 12x15" works in any sink. If bought at same time as any darkroom items of $4.98 and up, only $1 *Shpg. Wt. 3 lbs.*

DEVELOPING TANK

Simple bayonet lock for different size adjustments. Vents for quick changing of liquids. Agitating rod. Easy loading in darkroom — other operations in daylight. Easily worth double. **Tank with spare reel, $2.39**

ADJ. FOR 35MM, 828, 127, 120, 620, 116, 616. $1.49 *Sh Wt. 2 lbs.*

STATIC BRUSH

$2.99 if bought with other equipment.

Retractable, emits radiactive rays. To clean lenses, slides negatives!

CHANGING BAG

ONE OF THE MOST IMPORTANT "TOOLS" OF ANY PHOTOGRAPHER

Double zippered inner and outer bags, made of the finest cloth, make this bag 100% light proof even in brightest sunlight.
Whether for use in an emergency, with a film torn or pulled off the spool in a 35mm camera, or for reloading cut film holders or for developing film when no darkroom is available ... the changing bag is justly referred to as a "portable darkroom". 17"x16" working space plus elastic sleeves.

All these features at the lowest price a quality changing bag that was ever offered at. *Shipping charge 25c.* $3.95
PROFESSIONAL MODEL: 27"x30" working space, ($11.00 value) *Shipping Charge 50c.* $6.95

TIME EXPOSURE & DELAYED ACTION NOW ADDED TO EVERY CAMERA

AUTOKNIPS® II WAS $4.95 $2.95

This most popular of all self timers in conjunction with a cable release, adds to your camera a feature many a photographer has paid a small fortune for. 11 slow speeds from ½ a second to ten seconds! *Ship. Cost 10c*

CABLE RELEASES: 4" 25c 7" 35c 10" 45c 40" $1.25

2 x 2" 10 PC. NATIONAL PICTURE SLIDE SETS

50% OFF Yes, these famous sets of 2x2" full color slides of which hundreds of thousands have been sold at $1.00 per 10 are now brought to you at half price! Scenics from all over U. S. and many foreign countries, and children's stories — any eight sets (80 full color 2x2 slides with subject matter imprinted) $4.35 postpaid. **Each number contains 10 dif. slides. Choose from these:**

4. Block Island
5. Around NY City
8. Wash., D. C., Landmarks
9. Times Square to Central Park
13. Bryce Canyon
14B., 14C. Yellowstone
18. Big Bend Nat'l Park
32. Notre Dame Univ
35. Kansas City, Mo.
36. Glacier Nat'l Park
39. Wisconsin Dells
61. Madrid, Spain
71. Ireland
80., 81., 82., 84. Rome, Italy
100. Pyramids to Cairo
101. Cairo, Egypt
110., 111. Bombay, India
120., 121. Lisbon, Portugal
180., 181. Mexico
208. Australia
211. Haifa, Tel Aviv, Israel
C10. Fun at the Fair
M1. Three Caballeros
M2. Snow White

Two sample sets (20 slides) with complete lists $1.35 ppd. Any 4 sets (40 slides) $2.50 ppd. Act fast— the supply is limited. State some alternates, please.

MINUS LENSES for TELEPHOTO EFFECTS

If you have a camera using, or capable of using a bellows or extension tube set, you will want to invest in Minus Lenses for the thrill of taking telephoto shots without buying a regular telephoto lens, or extreme telephoto shots, in conjunction with your telephoto lens; for example, a single Minus 4 lens makes your 135mm telephoto into a 270mm telephoto—varied combinations will produce a variety of effects. Minus Lenses improve the perspective in portraits, too, by lengthening the effective focus length.

Thousands of Exakta, Praktica, Contax S and Leica, Canon owners with reflex housings find Minus Lenses most useful accessories.

Minus Lenses are mounted in Metal Rings and are sold in sets of three (of your selection) or four. Available in Minus 1, 2, 3, and 4. *Shipping Charge 10c.*

	PER 3	PER 4
SER. V	$3.60	$4.70
SER. VI	$4.35	$5.65
SER. VII	$6.00	$7.80

SAVE 50% AND MORE! POLARIZING SCREENS AND FILTERS

The most useful lens accessory made, equally suited for ALL color and b&w films.
Eliminates reflections in scenery, water, show windows, increases contrast between cloud and sky, the ONLY sky filter usable with Kodachrome, Anscochrome, Ektachrome. Polarizing Screens have double threaded rings to allow use of extra filter or closeup lens, handle for convenient adjustment of maximum polarizing effect. *Sh. Ch. 10c*

w/o Pola Screen — w/Pola Screen

	Polariz. Filter	Polariz. W/O Viewer	Screen W. Viewer
Ser. IV	1.40	3.75	—
Ser. V	1.49	3.75	8.40
Ser. VI	1.90	4.75	6.00
Ser. VII	2.70	5.75	7.00

SALE IN OPTICAL GLASS FILTERS

Filters are the tools of the photographer—yet, fine filters, made by the best known manufacturers in the country, need not be costly. Each filter is ring-mounted, and engraved as to type.

Ser. IV	$1.15
V	1.39
VI	1.50
VII	2.00

FREE on request: Famous Make Filter Compartment Case with purchase of 4 or more Ser. V, or Leather Filterbank with 6 or more Ser. VI deluxe filters (incl. polarizing) and closeup lenses. Cases cost regularly $3.50 (Ser. VI), $1.25 (Ser. V).

"About Filters, Closeup and Minus Lenses" is a booklet crammed with valuable info. Send 25c, or free on request with orders of $3.00 or more.

FOR B&W Lt. and med. yellow, green, orange, haze, red and infra-red. **FOR ANSCOCOLOR ANSCOCHROME** 10, 11, 12, UV 15, 16, 17. **GENERAL** Neutral Density 2X, 4X, 8X, 10X.

FOR KODACHROME & EKTACHROME Haze, Skylight, 2A, 2B, 85B, Type A, Blue 80, 82A, 1D, 2D, 81, 81A, B, C, D, EF, 80B. **CLOSEUP** +1, +2, +3.

FOR THE NEW EKTA CHROME 85C, 82A, 82B, 82C. **LENS SHADES** Ser. V $1.25, Ser. VI $1.50, Ser. VII $3.00.

Shipping Charges 1 to 5 filters 10c, 6 or more 30c.

A MUST FOR PORTRAITS & LANDSCAPES! DUTO-type DIFFUSERS for all cameras

Now available in standard series sizes, to fit all filter holders! Every serious photographer wants to use these famous coated diffusion disks preferred by the world's foremost pictorial photographers for their salon shots. Ser. IV $1.54; Ser. V $1.94; Ser. VI $2.24; Ser. VII $3.34

SAVE UP TO 50% ON Remote Control Unit For Airequipt

Now you can operate your Automatic Slide-changer (Airequipt, Argus, Brumberger) at distances up to 15 ft. — a feature you'd have paid $50.00 more for in other projectors!

REG. $29.95 — $14.95 when bought with 12 or more magazines

Airequipt 36 slide MAGAZINES with storage box and cover
2 for $3.18 12 for $18.95 *Sh. Wts. 2 & 6 lbs.*

12 magazines and Remote Control $33.90 Remote Control (when bought alone) $19.95 *Sh. Wt. 3 lbs.*

SLIDE TRAYS for REVERE 553, 555, 888

Sturdy trays, hold 36 cardboard and glass slides, intermixed, with index, in cardboard filing box.

2 for $1.69 12 in carrying case. $8.95 *Shpg. Wts. 2 lbs. and 6 lbs.*

Remote Control 15 ft. Release for Revere 888 $3.95

SLIDE TRAYS for TDC, VIEWLEX

LOWEST PRICES EVER! 30¢ ea. in lots of 120

Changomatic and Projectomatic
Extra strong plastic trays, hold 30 cardboard and glass slides, intermixed, with index.

4 for	12 for	48 for	120 for
$1.95	$4.98	$17.95	$36.00

Shpg. Wts. 3, 7, 22, 50 lbs.

METAL DELUXE CASE, HOLDS 12 TRAYS, ONLY $3.50, when bought with 12 trays.

FAN TYPE POCKET FLASH

Another history-making Spiratone value! A complete flashunit, 3½x1¼x1½", with shoe to fit any camera's accessory clip, or bracket, an efficient blade, 5" diameter fan reflector, and even such luxurious features as bulb ejector and push-button bulb-battery tester! Gun accepts standard penlite batteries, standard bayonet bulbs! For all German (Compur, Prontor) and Kodak synch shutters—for Exakta, Praktiflex, Argus C3, C4, Leica M3, Realist — add $1.00.

$2.99

BC Battery for BC gun, lasts year $1.00. Bracket, fits any camera $1.00. Tripper, *Sh. Ch. 35c*

Same Gun, with condenser, for BC $3.99

PHOTOFLOOD STAND PLUS TWO REFLECTORS

- 3-section metal stand extends 6'4".
- Sturdy, braced legs with rubber tips.
- Stand telescopes compactly to only 2 feet.
- Positive locking at any desired height.

The ideal indoor lighting setup. 22" crossbar, can also be used to hold screen, backgrounds. Two-spun aluminum 10" reflectors (for #1 or #2 photofloods), complete with sockets, switches, 6' cords, ball socket swivel joints, rubber jawed spring clamps. Can be used on cross bar or furniture. *Shipping Weights: Stand 4 lbs., Reflectors 4 lbs.*

$11 VALUE $6.98 COMP. Now with new SWIVEL CROSSBAR

SUGGESTION: 2 #2 photoflood bulbs	$ .86
Extra clamp on bullet with bulb (for semi-spot)	1.99
Extra photoflood stand with regular crossbar	3.49

Nothing like it for less than double! 20 FT. REMOTE SHUTTER RELEASE

Gently acting through airpressure. Vinyl hose, chrome cylinder, valve and hose connector to fit virtually any camera.

$3.98 LEICA MODEL 25c EXTRA *Shipping Charge 25c*

KOILED FLASH CORD $1.98

- Now available for most shutters. *Sh. Chg. 10c*
- Patented coiled cord extends to 4 ft., yet coils up without effort to only 7".

So handy when you want to hold flash away from camera, place electronic flash closer to subject than camera! Available with standard polarized household type plug for Heiland, etc., and prong-type for Kalart to fit Compur, Prontor S, ASA (Kodak), Solenoid, Argus C3, C4, Realist, Praktiflex and Exakta synchronized terminals. *Name gun, camera when ordering*

NEW KOILED CORDS: Rollei Lock, Nikon S-2, Canon, Bolsey Jubilee. $2.25

4 ft. Koiled Kord with male and female Compur fittings, fits all Compur cords $2.39

SYNCH YOUR OLD CAMERA

- Fully adjustable mechanical tripper, requires no installation, works through standard cable release socket of most old cameras. Has fitting for standard flash cord.
- Allows adjustment for flash bulbs and zero (X) delay for Strobe.

$2.49 PPD.

Tripper with famous make all metal flashgun (Flashgun only is $6.95 value, has bracket, accepts screw base bulbs, bayonet base adapter 39c) $4.95
Tripper with BC Fan Flash, with ejector, tester $6.95
Shipping Weight 2 lbs.

Spiratone auxiliary TELEPHOTO and WIDEANGLE lenses

HUNDREDS OF THOUSANDS OF SATISFIED USERS — FOR COLOR FOR B&W

for virtually all 35mm and 2¼ x 2¼ and Polaroid cameras

EXCLUSIVE FEATURES: Hard S-coating—superb color correction — same exposure and lens opening as usual—no installation — filterholders included — each lens in an elegant leather case, set in double case — easy-to-follow instructions — interchangeable adapters for use of most models on many different cameras — low prices that save you up to 50%.

A Spiratone TELEPHOTO brings distant objects closer, helps fill **entire** negative or slide with important subject matter, crops out unwanted background, improves perspective in portraits.

Accessory Clip easily glued to most cameras 75c
Accessory Clip for Argus C3, easily installed $1.00

A Spiratone WIDEANGLE adds coverage in cramped places, gets that extra area into the picture; wonderful for widescreen landscape scenes; increases depth-of-field, for foreground to infinity sharpness, makes accurate focusing unnecessary!

UNIVERSAL AND CLOSEUP (+1, +2, +3) FINDER, the most versatile finder ever made, matched to your **normal** 50mm or 44mm lens, telephoto and wideangle Aux. Lenses. Has parallax correction to 10", for use with +1, +2, +3 closeup Lenses, and from three feet to infinity. $9.95

Each finder, telephoto or wide-angle $3.95 (both for $7.49)

SET of BOTH LENSES in double leather case $29.95 *Shipping Charge 40c*

EACH LENS in leather case $16.95 *Shpg. Chg. 25c*

All prices include excise tax. Postage and insurance MUST be prepaid, even when no shipping weight is stated — overpayment will be credited in full. Everything listed is brand-new (unless otherwise stated) and fully guaranteed against defects. 25% deposit on C.O.D.'s. Items marked 'Free', 'Premium' or 'Bonus' MUST be requested at time of purchase. Foreign orders welcome — slight extra handling charges apply.

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35mm ANSCO COLOR FILM
20 exposure reloads, guaranteed perfect. Choice of Daylight or Tungsten. Developing & mounting & return included. PLUS FREE SET COLOR PRINTS.
complete $2.69 a roll
3 rolls $7.75 complete

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Professional EASTMAN Negative-Positive 35mm COLOR FILM (now available for amateur users)
20 exposure roll. Price includes return of mounted slides for projection as well as your original color negatives. Duplicate slides, color prints or black & white prints can be made from negative at any time with quality equal to original. ALL THIS PLUS FREE SET COLOR PRINTS
complete $3.10 roll
3 rolls $8.75 complete

YOUR OWN ANSCO OR EKTACHROME 35mm COLOR FILM processed, mounted and returned with complete set of FREE COLOR PRINTS. complete $1.89

ANSCO COLOR FILM AVAILABLE IN CARTRIDGES OR BULK FOR HOME PROCESSORS

Please add 10¢ per roll for postage . . . Ask for booklet on our complete services.
First With The First **Complete** Color Service which includes—duplicating—color prints—enlarging.

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ANY 20 EXP. 35mm PROCESSED and MOUNTED $1.00

Same Stereo mtd. $1.75
36 exp. mounted $1.75
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Guaranteed Fresh SOLAR-COLOR
35 mm 20 Exp.
Proc. extra at rates above 89¢ ea.
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Specify outdoor ASA 10 or indoor ASA 16
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Guesswork usually means a lot of poor prints — and some pretty frazzled nerves! The Spot-O-Matic Enlarging Meter tells you all the answers instantly . . .
1. Contrast grade of paper!
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Ideal for color—perfect for Black and white.
Don't guess! . . . KNOW! . . . Spot-O-Matically!

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$12.50
with 48-page manual, 6-ft. cord, paper speed chart.

trived pictures in which technical perfection usurped subject matter and genuine creative vision. But now there are signs in the present annual that German photographers are going closer to life in search of its spontaneity and truth. There still is a long way to go, as Kurt S. Safranski well says in one of the articles, but a beginning has been made, and the book, edited by Dr. Wolf Strache, is a creditable performance.

Subjective Fotografie No. 2 also comes out of Germany and is exceptionally successful. Under Otto Steinert's able editorship, *Subjective Fotografie* devotes itself to pictures in which subject matter is subordinated to the photographer's concern with abstract forms. The pictures, and the book, are successful by reason of the purely visual experiences which they afford. And these experiences are heightened by the superb quality of the gravure reproductions. It is a splendid book in which one man's point of view provides the all-important unity so necessary for a successful annual.

Last but not least is the *1956 Photographic Year Book* published by the British *Photography* magazine. Edited by Norman Hall and Basil Burton this is by far the best of the British Annuals to have appeared and the best of all the annuals reviewed here. The level of achievement, the variety of the pictures, and the quality of the reproductions are uniformly high. This is rather an extraordinary achievement in a country not notably progressive so far as photography is concerned. Although England played an important role in photography's history and can justifiably point with pride to The Royal Photographic Society, she has added few distinguished names to photography's honor role in recent years. This Year Book bodes well for the future even if most of the photographers represented are not Englishmen.

Yes indeed, the supply of photographs is inexhaustible, and as I write this with one hand I'm tapping the source with the other in preparation for the new COLOR PHOTOGRAPHY ANNUAL, which will be on the newsstands May 15th. And when that's out of the way we'll start on the 1957 PHOTOGRAPHY ANNUAL, which will be ready in August. Pictures? They're as plentiful as flowers, sometimes as beautiful and always wonderful and rewarding to gather.—*Bruce Downes*

You Can't Buy a Bad Camera from MINIFILM

MINIFILM

GENUINE ONE YEAR **GUARANTEE** DURING WHICH WE REPAIR AND REPLACE DEFECTIVE PARTS **FREE!** NO OTHER CAMERA FIRM IN THE WORLD ADVERTISES THIS **UNQUALIFIED** OFFER.

10% DOWN 10% PER MONTH

BRAND NEW!

..LUMINOR..

The world's only coupled rangefinder camera for less than $30

- Coupled Rangefinder
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- Compur Type Flash Synchronization
- 6 Shutter Speeds—B-1/10-1/25-1/50-1/100-1/300
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Dollar for Dollar... The finest camera ever to come from Japan.

35mm ONLY **$29.95**

Flash Gun incl. batteries $5.95
Deluxe Leather & Plush Case $4.95

SKYLIGHT COLOR FILTER ... SUNSHADE & CASE $2.50

UNBELIEVABLE! No better camera at double the price

10% DOWN

FREE SUBSCRIPTION TO "BOLEX REPORTER" INCLUDED

3 LENS BOLEX H16 OUTFIT

A terrific buy at this **WHOPPING LOW PRICE!**

You get:
- Bolex Camera Body used, plus Brand New Lenses

Brand New:
- 15mm f2.8 Wide Angle
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- 75mm f4.5 Telephoto

COMPLETE **$218 USED**

AMAZING $89.50 GERMAN IMPORT

WITH THE 200 DOLLAR LOOK | If Oscars were given for performance, the NEW 1956 LORDOMAT would win unanimously. Even professionals had to admit that the LORDOMAT is a "blue-blood" in the camera field. Created, designed and developed in Western Germany, birthplace of all 35mm cameras, the LORDOMAT is every bit a "thoroughbred" and these specifications prove it.

- INTERCHANGEABLE LENSES
- COUPLED RANGEFINDER
- COLOR CORRECTED f2.8 LORDAN LENS ON CLICK STOP DIAPHRAGM
- PRONTOR SVS SHUTTER
- APERTURES FROM f2.8 TO f22
- FULL MX SYNCHRONIZATION
- SELF TIMER—12 SEC. DELAY
- DOUBLE EXPOSURE PREVENTION
- SINGLE WINDOW VIEW AND RANGEFINDER
- SMOOTH ACTION, SHORT THROW RAPID FILM WINDER
- SPEEDS B, 1, 1/2, 1/5, 1/10, 1/25, 1/50, 1/100

LORDOMAT **89.50** ONLY

BRAND NEW

Deluxe Velvet Lined Leather Everready Case $9.95
Exclusive German import TACO DC Flash 7.95

CLOSE OUT!

In closing out these fine precision cameras the German manufacturer made us promise not to hint at his name. However, after one look at these specifications, it won't take you long to guess.

- Automatic film Transport Lever
- Built-in Rangefinder
- Built-in Exposure Meter
- Built-in Self Timer (12 Sec. Delay)
- Custom Finished Black Morocco & Chrome Body
- f2.8 Steinheil Cassar Color corrected lens
- Prontor SVS Shutter 1–1/300 Second
- Full MX Flash Synchronization
- Double Exposure Prevention Lock
- Self Cocking Shutter

GERMAN IMPORT 15mm **$39.95**

DELUXE CASE 5.95
FLASH GUN 5.95

REMEMBER! You can't go wrong. Your money back overnight, if you don't lick your chops when you see your lucky purchase

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SAVE OVER 60%

f2.8 Zoom LENS for all 16mm cameras

Berthiot Pan Cinor
Brand New disc model

With FINDER reg. $447.50

$179.50

Highest trade in allowances on your old lenses

Take Your Choice of Any One of These 300 Watt AUTOMATIC SLIDE PROJECTORS

With Automatic Changers!

Brand New

ONLY **$39.50**

Viewlex V33L	Reg. $67.00	$39.50
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NEW ... 35MM SEIKOSHA RANGE FINDER CAMERA

Generally, our hard boiled camera buyer can guess within 10% the value of a camera—but this NEW Japanese SEIKOSHA RANGE FINDER CAMERA had him stumped—He went off the beam more than 100%.

WHY?—JUST READ THESE SPECIFICATIONS—

- PRECISION MACHINED—ALL METAL CAST ALUMINUM AND satin chrome body
- BLACK PIN SEAL TRIM
- BRILLIANT IMAGE—COUPLED RANGE FINDER
- TRIGGER FAST AUTOMATIC RAPID REWIND LEVER—TAKES A SERIES OF SHOTS IN SECONDS
- FAMOUS GORR COMBINATION STANDARD AND WIDE ANGLE COLOR CORRECTED HIGHCOR f2.8 LENS WITH CLICK STOPS TREMENDOUS DEPTH OF FOCUS
- CHRONOMETER ACCURATE COMPUR TYPE 9 SPEED SHUTTER—1 SEC. TO 1/500
- FULL MX SYNCH. FOR STROBE OR FLASH
- AUTOMATIC HIGH SPEED REWIND OF EXPOSED FILM
- BUILT IN FILM CUTTER
- CRITICAL FOCUSING DOWN TO 2 FEET

Regardless of price ... If only a truly fine precision 35MM camera will satisfy you ... You must see the SEIKOSHA before buying

SPECIAL **$59.50**
DELUXE CASE 5.95
FLASH GUN 5.95

10% DOWN

WE HAVE IT!

TWIN LENS REFLEX CAMERA WITH f2.8 CTO. LENSES!

MINIFILM'S Newest Exclusive Offer! Direct From World Famous Japanese Factory To You!

SPECIFICATIONS
- f2.8 Cto. GORR Lenses!
- Fully Auto. Film Transport & Counter
- Platform Type Manual Focusing
- Synchro Shutter Included All Slow Speeds
- Body Shutter Release
- Built In Self Timer
- Die Cast Aluminum Construction

REG. VALUE $249.50

$79.50

BRAND NEW

15pc ARGUS C3 OUTFIT

with NATIONALLY ADVERTISED FAMOUS NAME EXPOSURE METER

ALL BRAND NEW

- REGULAR f3.5 CTO LENS
- FLASHGUN - CASE - 3 FILTERS
- 6 ROLLS B & W FILM
- SUNSHADE & FILTER HOLDER

REG. $102.50

$6.99 10% Down

CAMERA CASE & FLASH GUN $66.50

SPECIAL **$69.95**

10% DOWN

POPULAR "BUYS" AT MINIFILM

	Used	Trade In
Cannon IVS2 f1.8 Serenar	$121.50	$115.00
Contax I f2.8 Tessar	40.95	32.00
Contax II f2 Sonnar	72.50	60.00
Contax III f2 Sonnar	97.00	70.00
Contax IIA f1.5 Sonnar	155.00	140.00
Contax IIIA f2 Sonnar	165.50	140.00
Contax IIIA f1.5 Sonnar	179.50	150.00
Leica IIIC f3.5 Elmar	76.50	65.00
Leica IIIC f2 Summitar	96.00	85.00
Leica IIIF f3.5 Elmar	124.50	100.00
Leica IIIF f2 Summicron	167.00	145.00
Leica IIIF f1.5 Summarit	172.50	150.00
Nikon S f2 Nikkor	107.00	90.00
Nikon S2 f1.4 Nikkor	219.00	175.00
Exa f2.8 Westar	35.50	30.00
Exakta V f2 Biotar	97.50	75.00
Exakta VX f2.8 Auto West	137.50	115.00
Exakta VX f1.9 Auto Tenon	187.50	150.00
Contaflex f2.8 Tessar	78.00	65.00
Contax D f2 Biotar	88.50	70.00
Rectaflex f2 Xenon	117.00	90.00
Argus C3 f3.5 outfit	32.95	25.00
Argus C-4 f2.8	39.50	30.00

	Used	Trade In
Boisey B2 f3.2	19.95	15.00
Contessa f2.8 Tessar	71.50	55.00
Graphic 35 f3.5 outfit	52.00	40.00
Kodak Pony 135 f4.5	14.75	10.00
Kodak Signet f3.5	38.00	30.00
Kodak Retina II f2	49.50	35.00
Kodak Retina IIA f2	68.00	55.00
Kodak Retina IIIC f2	112.00	85.00
Minox III f3.5 outfit	76.50	55.00
Argus Auto 300 Case	33.25	30.00
Golde Manumatic 300W	23.50	18.00
Kodaslide Signet 500W	44.50	30.00
LaBelle 55 Auto 500W	45.50	30.00
LaBelle 75 Auto 500W	93.50	70.00
Revere 553 Auto 300W	39.50	30.00
Revere 555 Auto 500W	43.50	35.00
TDC Headliner 300W	20.50	15.00
TDC Mainliner 300W	29.50	20.00
TDC Streamliner 500W	46.50	30.00
TDC Duo 300W 2¼x2¼	30.50	25.00
TDC Model D 300W	30.50	20.00
TDC Proj-Or View 200W	47.50	35.00
TDC Stereo View 300W	77.50	60.00
TDC Stereo 500W	77.50	70.00
Viewlex V33L 300W	28.00	20.00

COLUMN 1 ... The Price Of Used Merchandise For Sale.

COLUMN 2 ... Immediate Cash We Will Pay You For Your Equipment.

A) Your Used Equipment Can Be Sent As Down Payment or Trade-In.

B) On NEW EQUIPMENT, write for lowest current prices.

C) Where Possible, Indicate 2nd Or 3rd Choice.

MAKE YOUR OWN DEAL

	Used	Trade In
Kodak Stereo f3.5	45.50	30.00
Stereo Realist f3.5 RF	62.50	55.00
TDC Colorist f3.5	57.00	35.00
Ciroflex D f3.5	32.00	20.00
Hasselblad 1000 f2.8	196.00	165.00
Hasselblad 1600 f2.8	276.50	215.00
Rolleiflex IIA Auto f3.5	71.50	55.00
Richoflex f3.5	22.50	15.00
Rolleicord III f3.5 Xenar	57.50	45.00
Rolleicord IV f3.5 Xenar	63.00	50.00
Rolleicord V f3.5 Xenar	85.50	70.00
Rolleiflex MX f3.5 Xenar	113.00	100.00
Rolleiflex MX f3.5 Tessar	121.50	105.00
Rolleiflex MX f2.8 Xenotar	172.00	140.00
Kodak Chevron f3.5 RF	117.50	80.00
Kodak Medalist II f3.5 RF	102.00	75.00
Polaroid 95A Speed-liner	36.00	30.00
Polaroid Pathfinder f4.5	143.50	110.00
Super Ikonta BT f2.8 RF	77.50	60.00

	Used	Trade In
23 Pace Speed f4.5 KRF	144.50	105.00
34 Pace Crown f4.7 KRF	134.50	100.00
45 Pace Crown f4.7 KRF	137.50	105.00
B&H 220 f2.5	29.95	25.00
B&H 134 TA f1.9 Tur	97.50	80.00
B&H 172A f1.9 Mag Tur	116.50	95.00
B&H 252 f2.3	36.50	28.00
Bolex C8 f2.5	53.50	40.00
Bolex H-8 Leader f1.9	141.50	115.00
Kodak Brownie f1.9	24.00	18.00
Cine Kodak Mag f1.9	54.75	40.00
Revere 50 f2.8	21.95	15.00
Revere 88 f2.5	30.25	20.00
Revere 84 f1.9 Tur	89.75	65.00
Revere 40 f2.5 Mag	50.50	40.00
Revere 44 f1.9 Mag Tur	89.75	65.00
Revere 863 f2.5 Mag Tur	82.00	55.00
B&H 253 500W	45.50	35.00
B&H Regent 500W	90.75	80.00
Keystone K70 500W	39.50	30.00
Keystone 95 750W	65.50	50.00
Keystone K109 750W	73.75	65.00
Kodak Brownie 300W	36.50	25.00
Revere 85 500W	48.50	40.00
Revere 90 750W	64.00	55.00

35mm KODACHROME

PROCESSING INCLUDED IN PRICE

FACTORY PACKED—1957 DATED

20 EXP.		36 EXP.	
1 ROLL	for $2.85	1 ROLL	for $4.25
3 ROLLS	for 7.95	3 ROLLS	for 11.59
6 ROLLS	for 14.99	5 ROLLS	for 18.75
10 ROLLS	for 24.50	10 ROLLS	for 35.95

LIMIT — 10 ROLLS PER CUSTOMER

LOAD YOUR OWN 35mm ANSCO CHROME

(SO QUICK – SO EASY – SO ECONOMICAL)

A CHILD CAN LOAD A ROLL IN 90 SECONDS!

A 20-EXP. ROLL COSTS ONLY **$1.11**

1. A Daylight Bulk Film Loader
2. 28 ft. of Ansco Chrome—enough for 8 rolls (rangued—frame numbered—1956 date)
3. 8 Brand new cassettes - 4 & Mailing bags

ALL FOR ONLY 8.88

35mm GUARANTEED Factory Fresh RELOADS

These Cartridges are Laboratory packed and Quality Controlled by MINIFILM in its own Air conditioned Darkrooms. Twenty and 36 Exposure Cartridges are manufactured daily from 100 ft. rolls received fresh from Eastman Kodak and Ansco. Careful supervision and tremendous sales turn-over insures your getting reloads which are equal in quality and freshness to cartridges factory packed. THE ONLY DIFFERENCE IS THE PRICE.

PRICES INCLUDE DEVELOPING AND MOUNTING

ANSCOCHROME 20 Exp.	ANSCOCHROME 36 Exp.	ANSCO COLOR 20 Exp.	ANSCO COLOR 28 Ft.	EKTACHROME 20 Exp.	EKTACHROME 36 Exp.
1 Roll 2.50	1 Roll 3.75	3 for 4.95	1 Can 11.95	1 Roll 2.50	1 Roll 3.75
3 for 6.65	2 for 6.95	6 for 9.59	2 Cans 23.39	3 for 6.95	2 for 7.35
5 for 10.50	3 for 10.29	10 for 15.49	3 Cans 33.95	5 for 10.95	3 for 10.50

28 ft. 35mm ANSCOCHROME Incl. Film Loader, 8 Cartts. & Mail Bags —Developing & Mounting for 8 rolls **$14.95**

35mm Ektachrome Bulk Film 1957 Date 28 Ft. Price Incl. Dev. & Mtg. $16.95 No Dev. 28 Ft. $33.50—100 Ft. $38.00

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1 Yr. Expiration

FACTORY PACKED Daylight or Tungsten

8mm 25ft. Double Rolls	16mm 100 ft. Roll
4 Rolls $9.45	1 Roll $7.15
7 Rolls 14.99	3 Rolls 19.95

KODAK TRI-X • PANATOMIC X

20 EXP. — 6 ROLLS $1.79 — 10 FOR $3.25
36 EXP. — 4 ROLLS 1.97 — 7 FOR 3.15

50 FEET — $3.25 • 100 FEET — 3.75

KODACHROME STEREO

PRICE INCLUDES DEV. & STEREO MTG.

20 EXP. — 3 ROLLS $9.95

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Newest top quality ULTRABLITZ offers 75 to 85 Daylight Kodachrome Guide (120W/S) with 4 volts storage battery (rechargeable). Weighs 5 lbs. Lifetime flash tube. Operates on 110V AC as well. Reg. $99.50 SPECIAL **59.50** incl. batteries, built in charger

ULTRABLITZ MATADOR SIDE LIGHT EXTENSION REGULAR $34.95 SPECIAL **$22.50**

BRAND NEW SKOT
2 x 2 SLIDE PROJECTOR
• 300 Watt • Blower Cooled
• Highland Green
List $48.50
SPECIAL **$26.50**
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IMPORTANT FOR **LEICA OWNERS!**

H&F will convert your LEICA FILTERS for the new TYPE F. Kodachrome & Ektachrome FILM. Don't discard your present filter...we will insert in your present Leitz Mount (fits almost all mounts) either a 82A or 85C filter. Except Summitar Filters. ONLY **$3.00**

KAGRA BULB & TUBING REMOTE CONTROL . . .

Takes pictures 30' from camera by merely pressing rubber bulb!
• Fits all types of shutters
• Ideal for self portraits
Complete with 30' cord, rubber bulb and simulated leather case.
Regular $10.95 SPECIAL **$6.95**

BRAND NEW 1956 Model CROWN
FLEXARET 111A!
Fully Synchronized Prontor SVS Shutter
• Automatic Film Transport
• Self Timer—Sportsfinder
• 2¼ x 2¼ Reflex Camera
Regular $109.50
SPECIAL ONLY **$49.50**
Complete with Carrying Case and Free Flashgun

TRADE YOUR OLD CAMERA IN!

EXAKTA VX—Latest Model . . .	43.50 + your old Exakta VX
RETINA 111C—Latest Model	74.50 + plus your Retina 11A
CONTAX 11A & 111A .	64.50 + your old Contax 11A or 111A
ROLLEIFLEX MX . . .	62.50 + your old Rolleiflex MX
ROLLEICORD V . .	44.50 + your Rolleicord IV
LEICA M3 . . .	114.50 + your Leica 111F self timer
LEICA 111F . . .	54.50 + your Leica 111C
ROLLEIFLEX f2.8C . . .	114.50 + plus your Rolleiflex MX
ROLLEIFLEX f2.8D . . .	74.50 + your Rolleiflex f2.8C
RETINA 111C . . .	74.50 + plus your Contessa
CONTAFLEX II . . .	67.50 + plus your Contaflex 1
CONTAFLEX 1 . . .	33.50 + plus your Retina 11A
CONTAX 111A .	44.50 + plus your Contax 11A
NIKON S2 . . .	54.50 + your Leica 111F
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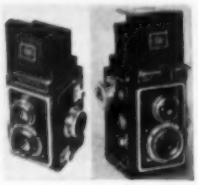
WHAT'S NEW - TRADE NOTES AND NEWS

All data and descriptions ascribed to products listed herein are those claimed by the manufacturers and distributors, and listings are not to be construed as endorsements by POPULAR PHOTOGRAPHY. For further information write to address given in trade note.

CAMERAS



NEW IKOFLEX CAMERAS are announced by Carl Zeiss, Inc., 485 Fifth Ave., New York 17. Both are of conventional twin-lens-reflex design and make 12 negatives on 120 roll film. Ikoflex Ib (shown at left of illus.) has oversize focusing and film-winding knobs, and shutter and diaphragm numerals enlarged by miniature magnifying lenses; the Extrabrite focusing screen has an etched grid defining picture limits; internal light baffling has been added and the shutter release button moved to the body of the camera, etc. Price, with 75-mm Novar *f*/3.5 lens, is $99; with Tessar it is $119. Ikoflex Ic is exactly the same as the Ib, excepting the addition of a built-in, ASA-calibrated photoelectric exposure meter. Ic prices are $119 with Novar lens and $139 with Tessar.

NEW DUAFLEX models are announced by Eastman Kodak Company, Rochester, N. Y. Kodak Duaflex IV with Kodar lens focuses from 3½ ft to inf., and Kodak Duaflex IV with Kodet lens is of fixed-focus type. Both variations have an improved shutter synchronized for all popular types of flashbulbs when set for instantaneous exposures. Both cameras produce 12 2¼x2¼ pictures on 620 film. Prices, respectively, are $24.50 and $15.95, and a Flasholder costs $4.25.

FUTURA S111 is a rapid-wind camera imported by Nidorge & Co., 103 Park Ave., New York 17. There is a choice of lenses—*f*/2 Evar or *f*/1.5 Frilon. Prices, respectively, are $177.50 and $227.50. The rapid-wind mechanism swings away from the camera and thus permits the taking of rapid-sequence pictures while using the viewfinder. Interchangeable wide-angle and telephoto lenses are available and all couple to the rangefinder. Also available is a Futura Universal Finder with parallax compensation and sunshade, as well as other accessories. Ask Nidorge for literature describing the many features of this new camera.

GRAFLEX EASY PAYMENT PLAN has been instituted by Graflex, Inc., Rochester, N.Y. It relieves the dealer of all responsibility concerning collections, since he receives from Graflex a check for a full amount of the purchase. Buyers under the new plan receive, in addition to the purchased equipment, a free Equitable life-insurance policy. Down payment is 10 percent of purchase price.

DELTA STEREO camera, made by Lennor Eng. Co., 5612 Clark St., Chicago, has fixed-focus, matched LaCroix lenses, a measuring rack that grips nine film perforations instead of the usual three, and a shutter with speeds of 1/25, 1/50, and 1/100 that's automatically cocked when the film is advanced. Distance adjustments are for 5, 8, 10, 12 ft, and infinity. The flash unit is part of the camera and has a safety shield that also controls light quality. Price, with viewer, camera case, a roll of color film, and 10 flash bulbs, is $84.50.

BOLSEY B3, newest camera in the line of Bolsey Corp. of America, 118 E. 25th St., New York, is a 35-mm model with 45-mm Bolsey-Steinheil *f*/2.8 lens in Gauthier shutter with speeds from 1/10 to 1/200 sec and B, and having stop markings equidistant to permit more accurate intermediate settings. Synchronization is X-type. B3 has a split-image rangefinder and all scales are readable from directly above. Focusing is accomplished by downward motion of a lever. The camera, with ready cowhide case, is priced at $59.95; Jubilee Flashgun costs $9.95.

AMIFLEX II, a twin-lens reflex camera imported by Sterling Howard, 561 E. Tremont Ave., New York 57, has 80-mm *f*/3.5 lenses, precision-coupled for accurate focusing. A magnifier covers the entire viewing field and a finger flip opens the hood. Shutter speeds include 1 to 1/300 sec and B, and flash synchronization is built-in. Price, complete with case and flashgun, is $20.95.

SUPER IKONTA IV, just announced by Carl Zeiss, Inc., 485 Fifth Ave., New York 17, is similar to Super Ikonta III in most respects, having a Tessar *f*/3.5 lens instead of a Novar, and Model IV has a built-in exposure meter, self-timer, and new Synchro-Compur shutter with light values. Price is $129.

EXAKTA Camera Co., 705 Bronx River Rd., Bronxville 8, N.Y., has printed a new catalog which contains 32 pages and 66 illustrations descriptive of Exakta cameras and several lenses. Each product is described in detail, with optical and mechanical characteristics, application, and price. Ask them for the publication, "Exakta Continued."

NIKON, INC. announces expanded service facilities at 251 Fourth Ave., New York 10, where the company has also established a modern new showroom and larger shipping department. All departments are manned and supervised by factory engineers and technicians.

SOLIGOR 66 single-lens reflex is announced by Interstate Photo Supply Corp., 17 W. 17th St., New York. It takes 2¼x2¼ pictures with a 75-mm Soligor *f*/3.5 lens with preset diaphragm. The fully flash-synchronized shutter (for focal-plane flashbulbs or electronic flash) has speeds from 1/25 to 1/500 and B. Focusing is effected both through the field lens and a split-prism rangefinder. All of the standard features of this camera type are included in the new Soligor, which is priced at $99.95, with case at $9.95.

LENSES & ACCESSORIES

MAKRO-KILAR 90-mm *f*/2.8 lens, import of Kling Photo Corp., 257 Fourth Ave., New York 10, has a double-sleeve helical mount permitting a reproduction ratio of 1:1.8 to infinity without the need for supplementary extensions. It employs a preset diaphragm mechanism and built-in lens shade with recessed filter retainer. Standard scales are supplemented by calibrations indicating reproduction ratios and exposure-correction factors. The lens is designed for use with 35-mm and 2¼x2¼ single-lens-reflex cameras, 16- and 35-mm movie cameras, and, with a reflex housing, it can be used with the Leica and similar rangefinder cameras. Price is $249.95. Ask Kling for literature.

SOLIGOR 135-mm *f*/4.5, a 5-element true telephoto lens, designed for Argus C-3 camera, is announced by Interstate Photo Supply Corp., 17 W. 17th St., New York. It has a click-stop diaphragm, screws into the camera mount, and focuses from 8 ft to infinity. Price, with 135-mm clip-on finder, is $49.95.

ALEFAR 180-mm *f*/4.5 lens for the Alpa 35-mm single-lens-reflex camera is a 4-element true telephoto and has a patented

Extensan mount permitting 20-mm focusing range, or from inf. to 6 ft. For ultra close-ups down to a 1:1.5 subject-to-negative ratio extension tubes or bellows are insertable between lens and extension mount. Length is 4½", weight 11 oz, angle of field 13 degrees. Price is $149 and distributor Karl Heitz, Inc., 480 Lexington Ave., New York 17.

PROJECTOR LENS for 8-mm movie projectors is employed with an anamorphic prism to fill a screen 36x 96" or smaller. The picture aspect has a ratio of 2.6 to 1, 100 percent wider than normal. Named the Wydar, the lens, a product of Tweedale and Anderson, Inc., 27001 W. Seven Mile Rd., Detroit 19, may also be used to compress camera images, when attached in front of the standard lens. Compression is the reverse of the projection ratio and wide-screen effects are therefore produced on film of standard dimensions. Price of the complete outfit is $95.

CAMERA ACCESSORIES

VIBRATION-DAMPING BASE for either still or cine cameras is mounted inside an automobile and permits picture taking during engine operation or car motion. It is a product of Jewett Mfg. Co., 201 Del Mar Place, San Gabriel, Calif. The primary unit, Triangle J Autopod, permits removal of camera, pan head, and adjustable elevating post, by loosening one knurled nut, and transfer to a professional-model tripod. Price of the Autopod, with Schiansky #132 Pan Head, is $84.50. For cost of other combinations and accessories write the above.

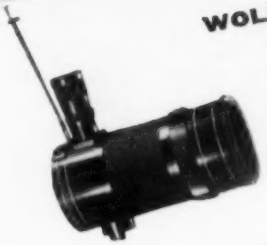
DUAL-PURPOSE FINDER is introduced by Accura Industries, 67 Forest Rd., Valley Stream, N. Y., under the tradename, Accura Universal and Closeup Finder. It corrects parallax from 3 ft to infinity when working with close-up lenses of 1, 2, and 3 diopters, and also has a clickstop dial by means of which the field of view can be set for 35-mm, 50-mm, 90-mm, and 135-mm lenses, for any distance from 10 in. to infinity. Price, in "jewel" box, is $14.95.

JOHNSON ROTOLOK TRIPOD HEAD has been introduced by General Photographic Supply Co., 136 Charles St., Boston 14. It enables a camera to be attached and removed from the tripod instantly without screwing, and provides panning and tilting movements. Attachment or removal is effected by a sliding double dovetail. Price; in various models to fit different cameras, is $1.90.

CONTUR is the name of a new camera bag created by the J. B. Perrin Co., 8476 Warner Drive, Culver City, Calif. Carrying comfort is enhanced by the curved shape and the bag has an adjustable equipment holder. Contur will hold a complete 35-mm camera outfit, a complete movie outfit, a combination of the two, or a reflex-camera outfit. There's a lens pouch in the lid and a roomy outside pocket, as well as the Perrin tripod-attachment straps. Serial numbers are recorded and owners' names registered when guarantee card is activated. Price is $29.95 in either California saddle or harness leather.

NEW CASE will feature future stocks of the No. 2 Mov-E-Lite, two-light unit marketed by Acme-Lite Mfg. Co., 401 N. Wood St., Chicago 22, Ill. It is of heavy steel, has rounded cor-

Finest Camera Accessories for Amateur and Professional



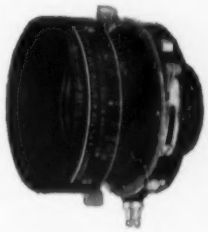
WOLLENSAK 20" FOTOTEL

. . . an f/6.3 lens with Mirror Optics

Mirror Optics in 20" FOTOTEL lens bring you many exclusive advantages over equivalent refractive telephoto objective: shorter, lighter weight, more compact unit. More rugged construction. Free from chromatic aberration, coma and distortion . . . . from $450

WOLLENSAK SUNSHADE

Permits setting the lens diaphragm without removing the sunshade. Lens stops plainly marked—easy to see. Filters drop in without removing sunshade and are held securely in place. Attractive, anti-reflection black finish $12.50



WOLLENSAK CINESET

Add new thrills to movie-taking at new low cost. Here is the most economical way to buy the finest matched wide angle and telephoto lenses in combination. Complete with haze filters . . . many with compensating finders. For 8mm and 16mm cameras . . . . . from $59.50 the set

WOLLENSAK WIDE ANGLE & TELEPHOTO ATTACHMENTS

Produce superb results. Do not change speed of normal lens. Fully color corrected. One filter fits both attachments. Telephoto attachment delivers 2½-time magnification . . . wide angle covers approximately 4-time area of normal lens. Fit Bell & Howell 252 and 220, Kodak Brownie f/2.7 and f/1.9 . . . . . Each $22.95

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OPTICAL COMPANY · ROCHESTER 21, N. Y.

FILM WHOLESALERS!

ALL FILM ABSOLUTELY SAFE & RELIABLE

FRESH COLOR FILM

This 1957 dated film is in its original sealed package fully guaranteed by the manufacturer. Day- or Tung. Price includes processing & mounting (35mm). MINIMUM ORDER—3 ROLLS.

Size.	Koda-chrome	McGregor Color	Vitacolor
8mm x 25' dble. roll	$3.50	$3.40	$2.30
8mm x 25' dble. mag.	3.60	3.50	3.50
16mm x 50' mag.	8.40	9.35	9.25
16mm x 100' roll	8.40	9.85	9.75
35mm x 20 exp.	2.70	1.85	1.79
35mm x 36 exp.	4.00	2.25	3 for 6.50
35mm x 12 exp.		6 for $5	

1957 DATE

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KODAK 16mm MOVIE Kodak Processing included
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1956 Date - Day. or Tung.
35mm x 112' $18.95
35mm x 50' 9.95
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28 ft. x 35mm. Orig. Pack. Easy Load. $7.99

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36 per box
3¼x4" or 2x2"
2 boxes for $1
11x14 ..... 6 per box
$1.50 per box

MOVIE—QUANTITY DISCOUNTS
B&W ASA 50. Reversal. No Processing

SIZE	54 Rolls	27 Rolls	15 Rolls
16mm x 50'	$19.95	$10.95	$ 5.95
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5¼"x9' ..... 4 for $1
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with 1½ gallon processing kit
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Ad-type LWFlex, SM, 40"x30', #3 ..... $2.00
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ners, embossed panels and continuous hinge, and is finished in gray hammertone. Price of the unit in new case is $5.98.

ALPEX TRIPOD is imported by Interstate Photo Supply Corp., 17 W. 17th St., New York 36. It has five sections and the tubular brass legs are rubber-tipped and telescope to a minimum of 12 inches. Threads fit both American and European cameras and price is $6.95.

POLYCO GROUNDGLASS FOCUSER is mounted in a metal frame with handles for rapid handling; fits easily into the film plane of the Argus C3 and similar cameras; permits precise focusing, composing, and determination of depth of field. Importer is Photographic Importing and Distrib. Corp., 135 Broadway, New York, and price is $4.95.

CUSTOM CASE for turret cameras is known as Adjusto Compartment Case, and is a product of Ruko Company, 3 W. 18th St., New York. The new case accommodates all turret-model movie cameras, together with lenses, film, and accessories. The adjustment is effected by manual movement of a patented "Adjusto Block." The cases are available in two finishes, top-grain leather and texon, and are available for 8- and 16-mm cameras. Prices start at $11.

BALCOP slide and film-strip copying attachment has been introduced by Balcop through Royal Photo Distributors, 78 W. 47th St., New York 36. It permits copying 1:1 or even enlargement of a section of the transparency or negative. It is used in conjunction with the Novoflex bellows attachment and bellows sunshade for single-lens reflex cameras, Contax, Leica, and similar cameras. Prices: 35-mm Balcop, $22.50; Bigcop (for 2¼"-sq single-lens reflex), $29.50.

FLASH

KOILED CORD of 4-ft length, coiling to 7 in., has been introduced by Spiratone, Flushing 54, N. Y., for Argus C3 flash unit. The prong fittings are adjustable for the desired amount of expansion to hold the connection at full extension. Price is $2.95.

STROBOFLASH IV, product of Graflex, Inc., Rochester, N. Y., has a 4-way power selector, providing at the flip of a switch 50-, 100-, 150-, or 200-watt-sec output. The unit, introduced by Graflex's Strobo Research Division, permits the taking of close-ups with fast film or long shots with color film; vary exposure without changing *f*-stops; balance multiple light sources; and increase action-stopping ability. Price is $165.95 less batteries.

ANSCO UNIVERSAL FLASH UNIT, the Binghamton company's newest product, combines the light-carrying power of a mirror surface with matte-type distribution. It has a new all-metal bulb socket and ejector mechanism, an improved electrical circuit, a built-in extension outlet for multiple-flash lighting, and a ready-reference chart on the back of the reflector. Price of this (demountable) unit is $7.95. It uses either dry cells or B-C cartridges.

NEW POWER PACKS have been developed by Speedlight Center, 128 W. 32nd St., New York 1. One uses 4D flashlight batteries and will yield 150-200 flashes per set with the Mighty Light or half as many with Mighty Light Deluxe. Price is $30. The second new pack uses 4 rechargeable nickel-cadmium cells of a flashlight size and of similar weight. Capacity is the same as the first type. Price is $47. The Nickel Cadmium Battery Recharger is priced at $15.

ASCORLIGHT AA-303 is a new-model speedlight unit made by American Speedlight Corp., Middle Village, N.Y. It provides the greater amount of light required for color photography and includes a main light (200 watt-seconds) and two secondaries (100 watt-seconds each). Normally operating on 110-volt house current the unit has a connection to which a 450-510-volt dry battery can be attached. A guide number of 120 is said to be normal for Ektachrome daylight film E-2. The operating unit complete with power pac, three lights, flashtubes, modeling lamps, and carrying case (with room for camera) is priced at $440.

STORAGE-BATTERY POWER SUPPLY is recommended by American Speedlight Corp., Middle Village 79, L.I., N.Y., for its Series 200 electronic flash. The new unit, called Power Pac Type BB-408, employs the Ascor Nickel Cadmium Battery, which is said to have exceptionally long life, giving about 300 flashes before recharging. The Pac has a built-in battery charger. Price of BB-408 is $59 without batteries; batteries cost $22.

LIMELITE CORP. and YANKEE Photo Products have merged in a move to improve manufacturing and sales positions of both companies, as a division of Windman Bros., 3325 Union Pacific Ave., Los Angeles, Calif. Sales of the Limelite Strobe will be under the manager of the last-named firm, and shipments of the new Model 60 as an a-c, d-c unit were scheduled for March.

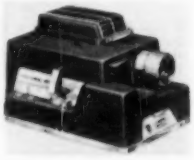
POWERMITE M2 flashbulb, G-E's peanut bulb introduced in 1953, has been improved in operating characteristics and is available in clear and blue types. The clear bulb is rated at 7,000 lumen-seconds and the blue at 5,500, the latter producing more light than the earlier clear type. Both bulbs have straight sides and advance the taking range for black-and-white film to 24 ft and 12 ft for color for standard films. With the new superfast films the shooting range is extended to 36 ft. Prices are 9 cents for clear and 11 cents for blue bulbs.

PROJECTING & VIEWING EQUIPMENT

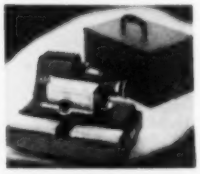
ADSLIDE is a new 16-mm color strip-film projector manufactured by Adslide Projector Co., 3740 W. Montrose Ave., Chicago. Designed for advertising uses, it operates continuously but remains cool due to an advanced cooling system. Perfect visibility in daylight and lighted rooms is insured by a built-in light shield. With 7 x 9 or 9 x 12 screen, projector and advertising-display cabinet are priced at $224.50. The projector alone costs $149.50 with carrying case.

SOCIETY FOR VISUAL EDUCATION, INC., 1345 Diversey Pkwy., Chicago 14, announces the acquisition of the Universal Seoscope Co., Oklahoma City, Okla. S. V. E. will now manufacture and market the Seoscope, a low-powered magnification unit for viewing and projecting animate and inanimate films.

AO EXECUTIVE is American Optical Co.'s (Chelsea, Mass.) new automatic projector for 2x2 slides. It is available in both 300- and 500-watt models. The all-new optical system includes an *f*/2.5 lens of 5-in. focal length and a new condensing unit that is removable for easy cleaning. All controls are located on a compact panel. AO Executive has an automatic changer which inserts, returns, refiles slides and advances tray in a single simple action. An illuminated numeral indicator on the projector top shows the position of the tray in changer. The 300-watt model is priced at $77.50 and the 500-watt at $76.50, and case for either costs $8.



POLARAMA PROJECTOR, for 2x2 slides is manufactured by Naren Industries, Inc., 2104 N. Orchard St., Chicago 14, as Model N-502A. The entire unit employs no plastic and is equipped with a 5" *f*/3.5 lens, has a 2-condenser optical system and blower cooling. Slide popping is eliminated, it is claimed. The 500-watt



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- Ilitar Coated F3.5 Lens
- Double Exposure Preventer
- Vero-Flash Synchro Shutter
- Focusing Ring
- Speeds to 1/200

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- Focusing Ring

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ILOCA 35mm STEREO IIA

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- Flash Syncro Shutter
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- New German Import

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TWIN LENS REFLEX WITH CARL ZEISS TESSAR F3.5 LENS

- Prontor SV-XM Synchro
- Automatic Film Winding
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- Folds Compactly

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Lightweight, Flat, Compact. Dearo-Aluminum Inner Tubes, Alum. Closed Outer Tubes. Black Ribbed Permanent Coating.

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Imported! Penta Prism Eye Level Finder, Waist Level Magnifier. With Double Cable Release. List 85.00 — **39.50**

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- Fully Automatic Lens • Waist Level Finder • Focal Plane Shutter • Speeds to 1/1000 • Synchro for Flash or Strobe • Rapid Film Transport and Shutter Cocking

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Eveready Carrying Case. List 12.50	10.00
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85mm Travenar, F2.8 Automatic Lens	54.50
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180mm Tele-Picon, F5.5 Preset Lens	47.50
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Exakta VX Automatic with Zeiss F2.8 Pre-set Lens, Penta Prism Range Finder. List 335.00	199.50
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No. 450-Diffused F4.5 Lens	119.95	89.95
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SINGLE LENS REFLEX, 50mm AUTOMATIC WESTANAR F2.8

- Fully Automatic Lens • Focal Plane Shutter • Speeds to 1/500
- Built-In Synchro for Flash or Strobe • Coupled Automatic Film Transport and Shutter Cocking

List 139.50 — **88.95** NO MONEY DOWN

Praktica, Pentacon & Contax S-D

85mm Travenar, F2.8 Automatic Lens	54.50
135mm Travenar, F3.5 Automatic Lens	49.50
180mm Tele-Picon, F5.5 Preset Lens	47.50
35mm Lithagon, F4.5 Preset W.A. Lens	49.50
90mm Sun, F4. Lens, List 49.50	17.50
135mm Sun, F3.8 Preset, List 66.50	29.50

Praktiflex Automatic with 50mm Westagon, Fully Automatic F2. Lens. List 179.50 ... 117.50

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Prismatic Eye Level Finders. List 42.50	14.50
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SOLIGOR SINGLE LENS AUTOMATIC REFLEX

- Color Corrected F3.5 Lens, Pre-Set Diaphragm
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80mm F6.3 Lens in Flash Supermatic Shutter. Speeds to 1/400. For 2¼ x 3¼ and 3¼ x 4¼. Guaranteed Like New!

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For 35mm Slide Users!

12 Trays for T.D.C. Selectron All Metal Storage Case. Each Tray Holds 30 Slides. List 23.95 — **9.95**

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For Kodak 8mm Magazine Cameras

6.5mm F1.9, W.A., Fixed. List 49.95	33.50
1½" F1.4 Telephoto, Focusing. List 54.95	34.50

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15mm F1.9, W.A., Focusing. List 54.95	34.50
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3" F2.5 Telephoto, Focusing. List 42.50	27.95
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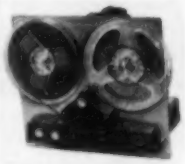
unit, built into a carrying case and including an automatic slide changer and one slide tray, costs $84.95.

POCKET VIEWER called Fold-Vu is manufactured by R. C. Spiro Mfg. Corp., 142 W. 24th St., New York. It is for 2 x 2 slides, is made of aluminum, and folds into handy size for purse or pocket; snaps open at the flick of a finger. Slides are held in alignment by a spring and an optically ground lens produces a clear, bright image, says Spiro. Price is $1.50.

ARROW VIEW, a 35-mm slide viewer, is claimed to have the largest lens in its price category and its pictures are said to be extremely brilliant. The back telescopes and the viewer lights automatically when a slide is inserted. Price is $3.95. Write for descriptive literature on this and other Arrow products.

KODASLIDE Pocket Viewer, an Eastman product formerly available only in a black-gray color combination, now is offered in dusty turquoise, bright red, and leaf green, all in combination with black. The original color scheme is also still available. Price is $1.95. A battery-powered illuminator, to which the Viewer can be attached, has also been put on the market.

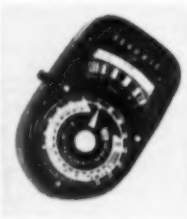
SOUND PROJECTION EQUIPMENT



TAPE TRANSPORT UNIT, Model 220, a product of Telectrosonic Corp., 35-18 37th St., Long Island City 1, N.Y., is a Hi-Fi device for custom installation, is supplied with tape transport, recording amplifier, play-back amplifier, and erase oscillator. Rapid switching from "record" to "play" is simplified, with protection against tape breakage, and recording results are improved by magic-eye recording-level indicator of high sensitivity. Price is $99.50. Write the above for complete information.

PENTRON CORP., 777 S. Tripp Ave., Chicago 24, offers a prerecorded tape with each purchase of a Pacemaker or Emperor tape recorder. Titled "Moods in Music," it is the first in a series of releases on the Pentron label and has a frequency response range from 40 to 16,000 CPS.

EXPOSURE METERS



EXPOSURE METER named Seconic is a new product imported by Photographic Imp. and Distrib. Corp., 135 Broadway, New York 6. This Japanese product features a dial extremely easy to read. High and low light grids have separate scales, ASA film speeds range from 1 to 1,600 and *f*-stops from 1 to 32; the (Compur) light-value readings are from 3 to 18 and shutter speeds from 30 sec to 1/1200, filter-factor readings from 1.5x to 4x, and movie-camera readings from 8 to 64 fps. The triple-conversion scale includes ASA, Weston, and DIN. Incident-light attachment and ready case are included in the price, $27.95.

DUAL SIXON, one of Kling Photo Corp.'s exposure-meter imports, now costs $13.95 instead of $17.50. The meter provides incident- and reflected-light readings without the need for attachments. Kling's address is 257 Fourth Ave., New York 10.

EXPOSURE METER called Seconic Leader is a product of Photographic Imp. & Distrib. Corp., 135 Broadway, New York 6. It has a new Compur light-value system, *f*-stops from *f*/1 to *f*/32, ASA film speeds from 6 to 800, one-hand operation, direct reading for Plus-X at 1/50, and Super-XX (sheet film) at 1/100. Dimensions are 1⅜x1 x2¾, and the meter is unconditionally guaranteed for accurate exposures. Price is $6.95; with case and carrying chain, it is $8.45.

DARKROOM EQUIPMENT

DAYLIGHT TANK is announced by Yankee Photo Products, 3325 Union Pacific Ave., Los Angeles 23, Calif. It is called Yankee Agitank and accommodates films from 2¼ x 3¼ to 4 x 5. Its loading bar places each of 12 films accurately so that none can touch another during processing. The cover has a large inlet and corner outlet, and there is an engraved solution-capacity chart. Agitation does not cause spilling. Price of Agitank is $8.95.

RIGGS ELECTRONIC INTERVAL TIMER, for darkroom use, times accurately and automatically any interval from one to 60 seconds. Dials need not be reset during use of a single interval and there is a single button for focusing or printing. Dimensions are 5x6x5", operation is on 115 volts a-c, and maximum load is 500 watts. Price is $22.95 with lifetime minimum-charge guarantee, and manufacturer is R. L. Riggs & Sons, P.O. Box 573, Resedo, Calif.

CONDENSER LAMPHOUSING has been designed by Simmon Brothers, 30-28 Starr Ave., Long Island City 1, N. Y., for the Automega E-5 enlarger, which accommodates negatives from 35-mm to 5x7. The device is furnished with 9-in. double condensers for 7½-in. lens and adapters are available for accommodating smaller condensers and correspondingly smaller lenses, from 4x5 down to Minox size. Price of the lamphouse, with 9-in. condensers, Colorhead attachment and filterholder, and adapter for smaller size combinations, for Automega E-5, $280. Another model, for Automega E-3 and E-4, costs $305.

MISCELLANEOUS

MICROFILM CABINET is announced by Nega-File Co., Doylestown, Pa. It holds approximately 30 microfilm magazines in six compartments and measures 13½x18x 4¾". In the illustration the new cabinet is shown at the top; other Nega-File models are below it. All are designed to stack one on the other. Price of Microfilm Cabinet is $15.95.

PORTABLE FILM EDITORS are announced by Mansfield Ind., Inc., 1227 W. Loyola St., Chicago 26. Among features are: 4 to 1 ratio rewind arms, folding away when not in use; all-metal construction automatic splicer and viewer with unbreakable view-

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If you'd catch nature's myriad aspects, there are the beaches and surf of Long Island, the majesty of Niagara, the forests, streams and soaring heights of the Adirondacks and Catskills, the gentler vistas of the Finger Lakes. If man's place in the scene most appeals to you, human interest subjects abound in country dooryards, in picturesque villages, on busy city streets.

Architecture—in periods from the early Dutch Colonial, through Revolutionary times, the Greek Revival years, the "gingerbread" Victorian era and on to the ultramodern—offer exciting challenges to your lens. Opportunities for wonderful action shots turn up at big league baseball games, horse races, water sports, carnivals, and sailing races.

Wherever you go, you'll find subjects that invite your best efforts—and to help you plan your "expedition" to fullest advantage, New York State is waiting to send you this big, 196-page guide—profusely illustrated in full color—giving complete data on 15 famous Vacationlands . . . 550 communities . . . 1,000 specific attractions:

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3 ☐ Catskills
4 ☐ 1000 Islands-St. Lawrence
5 ☐ Niagara Frontier
6 ☐ Finger Lakes
7 ☐ Saratoga-Lake George
8 ☐ Long Island
9 ☐ Mohawk Valley
10 ☐ Central New York
11 ☐ Hudson-Taconic
12 ☐ Genesee Region
13 ☐ Chautauqua-Allegany
14 ☐ Capital District
15 ☐ Southern Tier

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ing screen; optical-glass prism shutter; focusing and framing controls. Model P-950, 8-mm. is $45 and Model P-960, 16-mm is $49.50. Price includes film cement and carrying case.

BASIC FLESH is a new color recently added to the line of Photo-Oil colors made by the John G. Marshall Mfg. Co., Inc., 167 N. Ninth St., Brooklyn, N. Y. Natural skin tones are obtained with the new color without the mixing formerly necessary, and variations are obtained by rubbing the color onto the print until the desired tone appears. Price, in ½x2-inch tubes, is 35 cents and the larger size, ¾x4, costs $1.

CANADIAN KODAK COMPANY, LTD., has elected James W. Spence Chairman of the Board and Donald C. Kerr president and general manager. Spence has served Kodak for fifty years, recently in the capacity of treasurer and assistant general manager, and Kerr was secretary and assistant general manager. The elective meeting of the board was held November 17 at Rochester headquarters of the parent organization, Eastman Kodak Company, in Rochester, N. Y.

DECALCOMANIAS for identifying movie-film containers have been introduced by The Meyercord Co., 5323 W. Lake St., Chicago 4, Ill. The application is said to be new in this field and has been tested through co-operation of the Los Angeles County School System. Samples and full information are available from Meyercord.

POPPET, imported from England by Poppet Corp., 8707 Hudson Blvd., North Bergen, N. J., is an adhesive-dispensing device of fountain-pen type. When tapped against a surface it ejects a dot of rubber cement, of which there is sufficient quantity for 5,000 dots, it is claimed. Poppet is used for mounting photos, sealing gift parcels, preparing art layouts, as a substitute for paper clips, and is fitted with a cap to protect pockets or purse. Price is $1 and refills cost 10 cents each.

CHEMICAL PRINT COLORING process for enlargements is offered by Dyco Color Corp., 319 W. Liberty St., Louisville 2, Ky. The Dyco Color Print Kit chemicals are in the form of powders which are dissolved in water. The process is said to enable advanced amateurs to make color prints in the darkroom. Methods are described in a booklet, "The Dyco Color Print Kit," available free from Dyco. Price of the kit is $19.95 and for a limited time 15 sheets of 8x10 enlarging paper are included.

VU MAGNEMITE magnetic tape recorders made by Amplifier Corp. of America, 398 Broadway, New York 13, are fully described in a 4-page folder available from the corporation free of charge.

WOOD MOULDINGS for picture frames is available in considerable variety from Gem Products, 6 W. 10th St., Kansas City, Mo. Readycut lengths of any style are available completely finished, ready to assemble. Ask Gem for their "How To Frame It" booklet.

FILMOSTO slide binders, announced in our January issue, now include a 2¼x2¼ size. These glass-type binders have built-in masks and permit fast mounting of transparencies and their subsequent complete protection from wear, dust, and heat, it is claimed. Price of the new size is $1.95 for a box of ten; a trimming template costs $1.50. Importer is Karl Heitz, Inc., 480 Lexington Ave., New York 17.—

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35-mm TODAY

by Bob Schwalberg

(Continued from page 38)

resources are just now being taxed by the excellence of the new high-resolution thin films, not to mention the effect of the new superspeed films in making great lens apertures less necessary than before. Wanted: a lens maker willing to lavish the kind of care and quality now channeled into those marvelous speed lenses on a really sharp 50-mm lens of modest aperture which will be good at all *f*-stops, and distances.

This is just a guess, but we suspect that the top professional choice of focal length in the medium-long-focus department is the 85-mm or 90-mm, while amateur preference seems to veer toward the 135-mm. Both are very useful focal lengths, of course, but one factor in favor of the 85-mm is lens speed. The one-hundred-and-thirty-five-mm lenses are generally *f*/3.5 or slower. One is rated about half a stop faster, but we haven't tested this yet. Eighty-five-mm lenses, on the other hand, are available in apertures up to *f*/1.5, and an 85-mm *f*/2, lighter, more compact, and easier to use, is a most welcome companion.

Many photographers want a compromise between the 85-mm (29°) and the 135-mm (18°). The focal lengths that come closest are 100- and 105-mm. Trouble with 100-mm is that they're too slow, and the most recent speed advance in this focal length with which we're familiar is a jump from *f*/4 to *f*/3.5. Recently, however, a 105-mm *f*/2.5 Nikkor lens was introduced. This focal length gives 6° less than the 85-mm, and 5° more than the 135-mm. The *f*/2.5 aperture is only a half stop slower than the standard 85-mm *f*/2, and about a full stop faster than a 135-mm *f*/3.5. For these reasons, as well as the fact that they're remarkably sharp, 105-mm *f*/2.5 Nikkors are taking the place of many 85-mm and 135-mm lens teams today.

This discussion of interchangeable lenses will be continued in a later column.—▶

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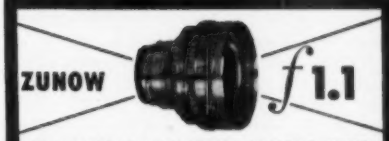

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In Mount for Leica, Leica M-3, Contax, Nikon	$450.00
Leica III with 50mm Zunow f1.1	489.50
Leica M3 with 50mm Zunow f1.1	594.50
Contax IIA with 50mm Zunow f1.1	489.50
Contax IIIA with 50mm Zunow f1.1	539.50
Nikon S-2 with 50mm Zunow f1.1	495.00
Canon with 50mm Zunow f1.1	485.00

LENSES FOR 35mm CAMERAS

Lenses for EXAKTA, SUPER D, PRAKTICA Contax S, D, ConSol, Exa, Pentacon, Praktiflex, Rival Reflex, (and Similar Cameras etc.)

All lenses latest models, coated. We are not permitted to advertise their famous names. Manufactured in Germany, Italy, France and Japan. Complete information is available upon request. When ordering, please specify with which camera the lenses will be used.

28mm f3.5	$ 88.95	135mm f3.8	35.00
35mm f2.5	74.65	135mm f4.5	29.00
35mm f4.5	48.30	135mm f2.5	134.85
38mm f5.7	26.25	150mm f3.5	88.95
40mm f4.5	37.50	150mm f2.3	206.25
40mm f3.5	37.50	150mm f5.5	60.00
50mm f2	92.15	150mm f1.8	256.75
50mm f2.8	53.50	165mm f3.5	146.25
50mm f1.9	119.65	180mm f4.5	72.00
50mm f1.5	123.50	180mm f5.5	59.95
50mm f3.5	35.00	180mm f2.8	239.50
55mm f1.8	119.50	180mm f3.5	146.25
58mm f2	78.50	200mm f3.5	63.75
75mm f1.5	119.95	240mm f5.5	93.75
75mm f1.9	119.95	250mm f5.5	93.75
80mm f2	74.50	300mm f4	329.50
80mm f2.8	66.50	300mm f5.5	164.95
85mm f1.5	93.35	300mm f5	146.25
85mm f2	98.00	300mm f3.5	270.00
85mm f2.8	49.85	300mm f5.6	121.45
90mm f2.5	74.50	360mm f5.5	112.13
90mm f4	24.95	400mm f4.5	270.00
90mm f1.8	112.50	400mm f5	183.75
90mm f3.5	68.50	400mm f5.5	149.65
100mm f3.5	25.85	400mm f5.6	108.95
100mm f2.8	48.00	500mm f5	337.50
102mm f4.5	99.25	500mm f8	356.00
105mm f4.5	15.95	600mm f5	423.75
105mm f3.5	56.95	640mm f5	543.75
125mm f2.3	146.25	800mm f6.3	562.50
125mm f2	180.00	800mm f5	671.25
135mm f3.5	49.95	1000mm f6.3	828.00
135mm f4	48.00		

Lenses for CONTAX and NIKON Cameras

21mm f4.5	$186.75	135mm f3.5	101.25
25mm f4	127.15	135mm f4	108.50
28mm f3.5	112.15	150mm f2.3	206.25
35mm f2.8	129.60	150mm f1.8	371.25
35mm f2.5	104.65	150mm f3.5	89.95
35mm f3.5	67.15	180mm f2.8	540.00
50mm f2	95.50	250mm f4	243.00
50mm f1.5	99.50	300mm f4	346.25
50mm f2.8	59.50	300mm f5.6	112.45
50mm f1.1	498.00	300mm f5	183.75
50mm f3.5	46.50	400mm f5	119.95
75mm f1.5	131.25	400mm f5.6	174.95
85mm f2	131.25	500mm f5	408.25
85mm f4	78.50	500mm f8	626.25
85mm f1.5	224.65	600mm f5.6	621.25
90mm f3.5	63.75	640mm f5	656.25
105mm f2.5	114.35	800mm f5.5	787.50
125mm f2.3	146.25	1000mm f6.3	937.50
135mm f3.8	76.45		

Lenses for LEICA, LEICA M-3, CANON Cameras

25mm f4	$127.00	105mm f2.5	115.00
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35mm f3.5	64.00	135mm f2.5	135.00
35mm f2.5	117.00	135mm f4	56.25
45mm f4	27.25	135mm f3.8	48.50
50mm f1.5	119.50	135mm f4.5	34.50
50mm f2	89.50	150mm f3.5	108.00
50mm f1.4	149.50	150mm f2.3	295.00
50mm f3.5	37.00	150mm f2.8	371.00
85mm f2	93.25	180mm f5.5	59.95
85mm f2.8	63.50	180mm f2.5	299.50
85mm f1.5	119.50	200mm f4.5	117.00
90mm f2.5	78.50	250mm f5.5	93.50
90mm f4	28.95	300mm f5.6	97.50
90mm f1.8	115.85	400mm f5	414.00
100mm f3.5	25.00	500mm f5	412.50
100mm f2.8	52.50	640mm f5	656.95
100mm f4	63.25	1000mm f6.3	937.00

Kodak RETINA IIC and IIIC

Retina IIC, f2.8	$104.63
Retina IIIC, f2	142.50
Retina Longar	61.75
Retina Courtar	47.75
Retina Universal Finder	13.25
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Wide Angle Attachment for All Retina Cameras	14.85

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Contax IIIA	237.00
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Leica III F	180.00
Canon	130.00
Exa Camera Body	29.95
Exakta Camera Body	115.00
Exakta VX with 50mm f2.8	144.50
Exakta VX with 50mm f1.9 Automatic Xenon	259.50
Praktica Camera Body	42.50
Praktica FX with 50mm f2.8 Carl Zeiss Tessar	63.50
Praktica FX with 58mm f2 Carl Zeiss Biotar P.S.	99.50
Praktica FX with 50mm f2.8 Automatic Westener	89.50
Praktica FX with 50mm f2 Automatic Westagun	119.50
Praktica FX with 50mm f1.9 Automatic Xenon	162.50
Contax D Body	84.50
Contax D with 58mm f2 Carl Zeiss Biotar P.S.	122.00
Contax D with 50mm f2.8 Carl Zeiss Tessar	97.00
ConSol Camera Body	105.00
ConSol with 58mm f2 Carl Zeiss Biotar P.S.	129.50
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Alpa 7 with 50mm f3.5	309.00
Alpa 7 with 50mm f1.9	399.00
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Deluxe Flashgun for Exakta, and Pentacon	12.95
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Microscope Adapter	9.95
Use your Exakta, or Contax D Lenses on your 8mm, or 16mm Movie Camera-Adapter	12.95

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Extension Bellows for Leica	12.95
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Edinar, cpld RF, F2.8	29.50
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Retina 11, ctd F2 Ektar	54.50
Bantam Spec. F2 Ektar, Synch	62.50
Retina 11A F2 MX Synch	77.50
Nicca MX Synch F2, wc	77.50
NIKON S1, Camera only	77.50
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RETINA 111C, F2	127.50
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LEICA

Model 'D', ctd F3.5	$ 62.50
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Model 3C, ctd F3.5	86.00
3F, ctd F3.5	86.00
3F, ctd F2 Summitar	126.00
3F, ctd F1.4 NIKKOR	149.50
Model M3, ctd F3.5	169.50
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ROBOT ROYAL F1.9	189.00
Xenon 295.00	164.50
EXAKTA 'VX', F2.8 Preset Tess.	

REFLEX 2¼ x 2¼

Ciroflex F3.5 Alphax	$ 24.00
Ciroflex F3.5 Alphax Synch	29.50
Ciroflex F3.5 Rapax	34.50
Ciroflex F3.5 Rapax Synch	39.50
Ciroflex F3.5 Rapax Full Synch	49.50
Ikoflex 11, F3.5 Tess. Solenoid Syncro & Case	47.50
Graflex '22' F3.5 1/200 Synch	42.50
Graflex '22' F3.5 1/400 Synch	52.50
Ansco Auto, F3.5	67.50
Ikoflex 111, F2.8 Tess.	67.50
PRIMAFLEX ctd F3.5 Tess, w case & 3 cut Film holders,(Syncro)	99.50
Haselblad '1600' F2.8 Ektar	195.00

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23 Pace, Crown, F4.5 Full Synch, Kal. RF, Graflok BK	$149.50
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620 Tourist, ctd F4.5 Syncro'800'	37.50
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Victor '4'	89.50
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DETAILS ON *BETTER LIVING'S* BEAUTIFUL BABY CONTEST

MORE than $2000 worth of prizes will be given away to winners of *Better Living's* beautiful-baby contest. *Better Living* is the official magazine of the Super Market Institute and is sold at independent supermarkets. The May 1956 issue will give complete rules for the contest.

See page 66 for Josef Schneider's story on how to photograph children.

The rules are: any amateur who lives in continental U. S. A. or Canada is eligible, provided he is not connected with any firms listed in the rules. All photographs must be of children and technical quality will be considered as well as subject appeal. Subjects should not be over five years old, and no photograph can be submitted if taken before January 15, 1956. The pictures must be black-and-white, and the prints should be at least 4x5, but not larger than 8x10. Each entry is to be pasted on the cover of the May or June 1956 issue of *Better Living* with an individual entry blank pasted on the opposite side of the cover. Read the official rules carefully. Prints will not be returned. All winning pictures become the property of *Better Living*. June 19, 1956 is the closing date.

The contest will be judged by television stars Steve Allen and his wife, Jayne Meadows, and the editors and art directors of POPULAR PHOTOGRAPHY and *Better Living*.

Prizes will be:

1st: 21-inch Magnavox Deluxe Color TV set, value: $950 plus installation cost.

2nd: Polaroid Land Camera (camera, case, flash, meter, filter kit, close-up kit, film), value: $203.

3rd: TDC Stereo Camera Kit by Bell & Howell (3-D camera, case, flash unit, 2 filters, hand viewer), value: $178.

4th: Bell & Howell 8-mm Movie camera Kit (camera, case, light-bar, flood lamps, filter holder, 2½x telephoto attachment, retaining ring), value: $100.

5th: 50 Camille Photo Albums at $3 each for all semi-finalists, value: $150.

For all 10 finalists: a Super 75 Argus Color Camera Kit valued at $32.50 each.

This is *Better Living's* May 1956 cover. Contest is to be announced in this issue.

1st prize: a 21-inch Magnavox Magnacolor Contemporary color television set. Value: $950.

2nd prize: Polaroid Kit (camera, case, flash, meter, filterkit, and close-up kit). Value: $203.

3rd prize: TDC Stereo Package (camera, case, flash, 2 filters, hand viewer). Value: $178.

4th prize: Bell & Howell 8-mm Movie Kit (camera, case, and flood lamps). Value: $100.

TOOLS AND TECHNIQUES

by Norman C. Lipton

(*Continued from page 26*)

hot summer sun without causing undue deterioration of the film. At first, it is expected that only the more popular black-and-white films will be supplied, but the manufacturer already visualizes and is preparing to meet demand for dispensers handling 35-mm color films. Anticipated locations for film-dispensing machines are: hotel lobbies, drug stores, gas stations, food stores, transportation depots, and, above all, busy camera shops.

Liquid Filter Coating. Partially window-lit movie sets have always posed a problem in that the intensity and color quality of the window lighting must be balanced against that of the artificial illumination directed to the interior reaches of the set. Until recently, gelatin filter sheets were used. But these have always been difficult to handle because of wrinkles, warpage, and deterioration caused by moisture in the atmosphere. A new approach is being used today by Karl Freund of *I Love Lucy* TV fame and a number of other directors. This method makes use of an ultraviolet-absorbing liquid plastic that had originally been designed to retard the fading of merchandise displayed behind large store windows. Provided in a variety of standard filter colors ranging from 2X neutral density to yellow (K2), orange (G-15) and Type A color (85A), the plastic is marketed for the purpose as Infropake Ciné Filter Liquid.

In use, the dye-colored plastic is flowed from an applicator spout from the top of the glass pane to the bottom as the applicator is slowly moved across the top of the window. The excess liquid is caught in a trough made of aluminum foil which is temporarily taped to the bottom of the window. Within 30 minutes of application, the coating is dry to the touch and ready for use.

A quart of Infropake Ciné Filter Liquid, sufficient to coat a window panel up to 3-feet high, lists at $20; the 1-gallon quantity, $50, and the 5-gallon, $200. A pressurized tank, thinning solvent, and recirculation equipment can be had for large-scale use. The material is available by direct order from the Infropake Corporation of America, 153-16 Tenth Avenue, Whitestone 57, N. Y.

M2 Flashbulb Progress. The Lamp Department of the General Electric Company has made still another effort to influence the quickening trend toward flashbulb miniaturization by announcing two substantial changes in their M2 line. The original G-E M2 flashbulb introduced in the fall of 1953 has been replaced by a new clear PowerMite M2 flashbulb that emits almost twice as much light as the M2; and a new blue-dye coated PowerMite M2B lamp for making flash shots with daylight-type color films has been added. Both of these new lamps have the same pinless miniature base as the M2, but the

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SPECIAL BUY!
With 6¾" f4.5 lens. Perfect for rapid-sequence action. Makes 4 x 5 negative. Hand held. Lightweight. Shutter speeds to 1/500 sec. Reconditioned like new. Fully Guaranteed.
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E. K. SUPER X 16mm x 50' MAGS. Free Processing. (Wgt. 1 lb. each) ..... $2.39 each 2 for $4.50

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With 100' Roll Dupont No. 2 (ASA 50) or Kodak Super XX (ASA 100) $6.50
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Haloid 10" x 10" D. W. Semi-Matte. No. 2. 100 sheet package, ea. $3.95
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(Shp. wgt.—2 lbs. per box)

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16mm x 100' KODAK SUPER X and ANSCO HYPAN MOVIE FILM—FREE PROCESSING, INCLUDED ..... each $2.98 (Shp. wgt., 1 lb. ea.) 4 for $10.95
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Black and White Roll Film
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Ektachrome Kits for home processing (1½ Gal. Developing Kit) $1.50
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144 sheets per box .. $1.29
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BOOTH NO. 62

National Photographic Show
New York Coliseum
April 28—May 6, 1956

bulb shell has been changed slightly in contour and about 1/32 inch added to its diameter. G-E states that the increase in light output is essentially the result of a radically new method of filling the bulb with oxygen, arising from an improvement in manufacturing equipment design. Where the old M2 lamp emitted 4,200 lumen seconds of light, the PowerMite M2 produces 7,000 lumen seconds and the blue M2B 5,500. The time-to-peak of the two new lamps remains the same as that of the old M2—15 milliseconds; the effective color temperature of the PowerMite M2 and the old M2 is also the same—4200 K; the PowerMite M2B has a rating of 5000 K, which is slightly "warm" for daylight-type color films, yet, on the basis of samples shown seems quite ideal in terms of pleasing results. The new M2 is priced at 9 cents, like the old M2, whereas the M2B has a suggested list price of 11 cents per lamp.

The introduction of the first G-E M2 flashbulb two and one half years ago, touched off a movement among flash equipment manufacturers which led to highly efficient three-inch reflectors particularly suited for use with small box cameras. The change in the G-E miniature lamp line adds an extra light-output factor as well as versatility in the direction of color flash photography which many manufacturers of miniaturized equipment had not foreseen.

Electrofax Printing Plates. The preparation of printing plates for offset and photoengraving reproduction by a single photographic operation which is claimed to be thousands of times faster than conventional methods was described last December 8 at a meeting of the Rochester Technical Section, PSA, by Harold G. Greig of the RCA Laboratories technical staff. The new swift method makes use of the RCA Electrofax system of electrostatic photography which we described in T&T for August 1955. At the Rochester meeting, Mr. Greig told the audience that a complete lithographic plate could be prepared in less than a minute by means of the Electrofax system, and that it permitted a letterpress printing plate to be prepared for etching in a few minutes. Still another application he described was the swift production of printed circuits for incorporation in electronic devices.

In preparing printing plates, a special Electrofax coating of photoconductive pigment (such as zinc oxide in a resin binder) is applied to the metal plate to be used in printing. After the coated surface has been sensitized by an electrostatic charge, the exposure can be made either by direct projection, by contact through a transparent positive or negative, or photographically with a photoengraver's process camera. The resulting electrostatic image is developed by brushing the surface with a resin powder carried on a magnetic brush: particles of the powder clinging to areas where the charge remains relatively unexposed, and leaving the discharged (by light) highlight areas unaffected. Thus, a reproduction of the original copy is produced on the surface of the plate. The image is then permanently fixed by fusing it under

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heat, the entire process taking less than a minute with hand-operated equipment.

In the case of photoengraving plates which are to be etched by standard methods, the original Electrofax pigment coating is removed from the fixed image plate by means of a solvent so that the metal is exposed for etching. The resin powder selected in this application is resistant to the acid used for etching. On the other hand, when a lithographic plate is being prepared for offset printing by the Electrofax system, the surface bearing the fixed image is swabbed with a chemical mixture that leaves the fused image areas receptive to greasy inks and the coated background areas receptive to water. Mr. Greig reported that in tests at the RCA Laboratories, Electrofax offset masters on a paper base had produced more than 1,000 good copies; longer runs are expected with metal plates.

Odds & Ends. A four-way power selector providing input rating of 50, 100, 150, and 200 watt-seconds is the unique feature of the new Stroboflash IV electronic flash unit recently announced by the Strobo Research division of Graflex, Inc. Located atop the powerpack housing which contains the capacitors and dry battery, the switch cuts off the capacitors that are not needed for full-power operation, thereby conserving battery power and permitting faster recycling time between flashes.

. . A 400-mm (16-inch) lens with preset diaphragm for the Exakta 66 (2¼x2¼ single-lens reflex) camera is now available—the f/5.5 Meyer Tele-Megor Telephoto Lens. Priced at $199.50, the new lens weighs 3 younds 14 ounces and has an over-all length of 11 inches, including sunshade; it has a 4-element construction.

. . . Kodak Royal Pan film, which had formerly been available only in sheet form, is now being supplied in unperforated 70-mm rolls 60 feet long. The portrait-type retouching surface of the film takes pencil retouching easily and the gelatin anti-halation backing is claimed to help prevent curling when individual frames are cut from the roll.

. . . A new high-speed method for studying the formation of unknown intermediate chemical complexes in dye synthesis was described by Dr. Karl Tong of the Kodak Research Laboratories at the December 5 1955 meeting of the Rochester Section, American Chemical Society. It is claimed that the technique may eventually prove helpful in devising new color chemicals for photography. Essentially, the method makes use of a rapid-mixing machine: the two chemicals under study are forced at high speed through narrow tubes into a mixing chamber from which they proceed at a constant rate down a single tube to an observation station or a second mixing chamber. The reaction time is determined by measuring the length of the single tube. Present Kodak mixing apparatus worked out by Dr. Tong and Dr. Willard R. Ruby can maintain reaction times ranging from seven milliseconds to three seconds.—

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Warm Tone Enlarging Paper
Normal contrast (Opal "G" Indiatone type). DW, eggshell lustre. 1956 dated. Mfrs. 2nds. Guaranteed.

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SW, SM. Washes free of Hypo in minutes. Dries quickly.

Size	100	250	500
8x10	3.69	8.44	15.95
8x 7	1.89	4.40	8.25
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5x 5	1.49	3.49	1.95	4.50
5x 7	1.69	3.95	2.25	5.25
8x10	3.49	------	3.95	8.75

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Prices include processing

Size	Type	Speed	Price
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616-116 E.K., Ansco, Gevaert . . . . . 20 for 2.40

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Creative Photography?

(Continued from page 78)

able but unquestionably exciting forms.

Fayman's "visual experiences" can be recreated by any amateur with a bit of imagination and very modest equipment. Being a pro, he uses a fine camera, a great many studio spotlights, and (for the shadow-image pictures) a process screen such as Hollywood employs for projected movie backgrounds. But any camera can make creative color Fayman's way. Preferably, it should be capable of focusing at close distances, and it should have groundglass viewer to permit you to study composition and color harmony as it will appear in the finished photograph. Fayman uses an Exakta, a 35-mm single-lens reflex camera of extreme versatility which permits viewing directly through the taking lens, and which has accessory extension tubes to make extreme close-ups possible.

Fayman's technique makes use of three optical effects: reflection, refraction, and diffraction. Everybody knows what reflection is, and the other two terms are just as easy to understand. Refraction is the *bending* of light as it passes through a lens or prism; diffraction is the deflection or softening of light as it passes around the edges of opaque objects. (This is what makes rimlighting such a fine portrait technique.) For these effects Fayman makes use of three classes of "tools": for reflection, mirrors, both plane and concave; for refraction, optical prisms and lenses, including simple magnifying glasses; for diffraction, bits of metal, plastic, cardboard, and paper.

To introduce the element of color, he uses color gelatins like those intended for mounting on spotlights. But often, instead of fitting them directly onto the spots, he mounts them on ingenious little wire stands, so they can be moved about to color only parts of the picture area, or so that the colors can be combined more freely.

Most of these supplies are easy and inexpensive to obtain. Fayman's translucent process screen is a costly item, but you can substitute for it a sheet of vellum, tracing paper, or oiled drawing paper; its size to be determined by the scope of your efforts. You can get this at an art supply store if you don't already have it; and while you are there, look for a small magnifying glass on a gooseneck stand, and a prism. Otherwise, these two things can be had from a scientific supply store. The color gelatins you can get from a theatrical supply shop. Don't try to use any kind of colored plastic which is not intended to stand intense heat!

Experimenting like this will naturally bring into play all the lighting equipment you own, and if your lighting cupboard is bare, this will be a good time to acquire a small studio spot or two, or at least some reflector spot lamps which have built-in focusing lenses.

As you will have noted from the illustrations, there are two ways of approaching this kind of creative photography: from the front, and from the back. That is, you may shoot your central subject matter directly, against a background of colored lighting effects (like the thumbtack pictures), or you may create the whole image—subject, light, shadow, and color—on the translucent screen and photograph it from the opposite side (as was the case with the "non-objective" picture with the wire mesh).

Color balance, which is so important in most color photography, is of less concern when you are shooting abstractions like these. It will probably be best to begin with a color film which is approximately balanced for the kind of light you are using. (It will be impossible to match them precisely under present conditions unless you can use Type B sheet film and 3200 K lamps, since other tungsten films are balanced for flash.)

Fayman has been making his non-objective color photographs for eight years, and new vistas continue to open for him. He is enthusiastic in encouraging other photographers to try abstraction; he says, "I am appealing to the thinking photographer who has a spark of ingenuity and imagination, who wants to get away from ordinary run-of-the-mill subject matter in his pictures." He feels that since the photographic image depends entirely on light and its control, further study of light and practice in using it creatively can be fruitful and satisfying. "Photography," he continues, "must be recognized as a means not only of taking pictures that have not been taken before, but of creating the kind of visual experiences that are increasing photography's importance as an art." For him, creative pictures are not the ones that are *taken*, but the ones that are *created*.—▶

GUIDES TO BETTER PHOTOGRAPHY

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CAMERAS, STILL

6. (f) Argus Photo Tip Portfolio: 5 Booklets on Flash, Filter Magic, Curtain Time, TV Pictures, Copying and Close-up. 25c. ARGUS CAMERAS, INC.

8. (a) Book: Complete reference book for amateur and beginner, "The Bolsey Guide," 128 pp., 70 illus., charts, tables, $1.95. (b) Circular: Bolsey Precision Cameras, features new Jubilee Threesome, prices. BOLSEY CORPORATION OF AMERICA.

11. (a) Brochure: "Bino-Fotography." (b) Booklet: "How to Select Binoculars." D.P. BUSHNELL COMPANY.

18. (a) Brochure: List and prices of 400 items for Exakta cameras. (c) Brochure: Automatic Exakta VX; New booklet. EXAKTA CAMERA COMPANY.

23. (a) Booklet: For Prize Winning Pictures—Graflex, Specifications, etc.

26. (a) Booklet: The Royal Robot; (b) Booklet: Robot Underwater Camera; (c) Booklet: Robot Accessories. INTERCONTINENTAL MARKETING.

26. (f) Brochure: Gives full details on new full-frame 1" x 1½" Robot Royal 36-power-drive camera as well as accessories.

31. (a) Booklet: Holiday Photography; 25c. (c) Booklet: Hints on camera care and picture taking; also describes complete line of Konica cameras, accessories. 16 pp., illus. KONICA CAMERA CO.

34. (a) Booklet: Minolta "A"; Minolta 35, Model II and Rokkor lenses. (b) Booklet: Minolta Autocord and Minoltacord. FR CORPORATION.

38. (a) Catalog: Discusses each Polaroid Land Camera, accessories, gives hints and ideas for using 60-second pictures, illus. POLAROID CORPORATION.

39. (a) Brochure: Information on book titled "35mm Photography With A Praktiflex." (b) Brochure: New booklet on the Prakticon-Praktiflex FX. PRAKTICON COMPANY.

41. (a) Brochure: "Realist 35"; detailed facts on Model A & B, accessories. (b) Brochure: Commercial Applications of the Stereo-Realist, 4 pp., illus., plus 12 pp. of detailed information relating to modern selling. (c) Brochure: Realist 45, description, illus. REALIST, INC.

45. (a) Booklet: Omega 120; data, description. SIMMON BROTHERS.

52. (a) Booklet: "The Voigtlander Line"; complete details, description, illus. (b) Booklet: Complete detailed information of Hasselblad Camera, accessories, 26 pp., illus. (c) Hasselblad Super Wide Camera, details, description of camera, accessories; 32 pp., illus. (d) Folder: "Hasselblad 1000F", illus., descriptive pamphlet of Hasselblad and accessories. (e) Folder: Illustrated and descriptive folder on Hasselblad Super Wide. WILLOUGHBY'S WHOLESALE.

53. (a) Brochure: "Edixa"; describes 35mm Edixa cameras, accessories, lists prices. WIRGIN BROS.

CAMERAS, MOTION PICTURE

7. (a) Brochure: The Auricon Cine-Voice; 16mm camera for professionals. (b) Brochure: Same as above, except for home movie makers. (c) Booklet: How to use your Cine-Voice, 16mm sound-on-film Recording Camera. (d) Catalog: 40 pp., illus., Auricon Cameras. BERNDT-BACH, INC.

12. (a) Brochure: "The Eumig 88"; description, details, lists accessories for this 8mm movie camera. CAMERA SPECIALTY.

26. (d) Brochure: Bauer 88 motion Picture Cameras; Descriptions and accessories; also details on Bauer 88B camera with built-in exposure meter. (e) Booklet: Bauer 8mm Cameras. Complete descriptive literature on the Bauer cameras as well as the story of Bauer plant in Germany. Material includes cameras, accessories and suggestions as to use of equipment. Illus. INTERCONTINENTAL MARKETING CORP.

30. (a) Booklet: 8mm full line covering all 8mm movie cameras and projectors. (b) Circular: 16mm full line covering all 16mm movie cameras and projectors. (d) Book: Keystone Movie Scene Record Book; 15¢. KEYSTONE CAMERA COMPANY.

43. (a) Booklet: Cameras by Revere. REVERE CAMERA COMPANY.

63. (a) Catalog: Lists Wollensak Motion Picture Cameras, Projectors, Stereo Cameras and accessories, prices, descriptions. 12 pp., illus. WOLLENSAK OPTICAL.

MOTION PICTURE ACCESSORIES

29. (a) Booklet: "Home Movies the New Craig Table Top Way," 20 pp., illus., including tips on tricks, etc., movie editing. (d) Booklet: "Editing for Better Movies" by Leo Heffernan, 50¢. KALART COMPANY, INC.

37. (b) Magazine: "The Bolex Reporter," quarterly, available thru franchised Bolex dealers. PAILLARD PRODUCTS, INC.

42. (a) Brochure: RCA 400 Junior and Senior 16mm Sound Projectors; non-technical description of operating features. Illustrates sound equipment which may be combined with projectors in semi-permanent or permanent installations, 12 pp., illus. RADIO CORPORATION OF AMERICA.

43. (b) Booklet: Features and operation Curvamatic Splicer. (c) Booklet: Curvamatic Splicer, details, data. (g) Booklet: Motion Picture Equipment. REVERE CAMERA COMPANY.

LENSES

11. (c) Pamphlet: "Those Startling Fujinons"; discusses the new 50mm F1.2 and 35mm F2 lenses. D.P. BUSHNELL COMPANY.

15. (a) Chart: How to use Two Ednalite Portrait Lenses. (b) Brochure: Portrait Lens Instructions; tables, charts on +1, +2, +3 portrait lenses. (c) Reprints Ed N. Lite Column: informal, simple information on use of EdnaLite Filters. (d) Charts: EdnaLite Color Filter Selector—the correct EdnaLite to use under approximate lighting conditions of all kinds. (e) Filter Guides: Listing and describing all available EdnaLite Filters, filter factors. (f) Booklet: The EdnaLite Story—Complete story with photographs, telling and showing how EdnaLite Solid Optical Glass Filters are made, from raw glass to finished product. (g) Memo from Ed N. Lite—Complete with description of EdnaLite Filter Kits and Filter Factor Chart. (h) Leaflet: Facts and information on the Reversible Wide Angle/Telephoto EdnaLite Dual-Lens. EDNALITE OPTICAL COMPANY.

16. (a) Leaflet: "How To Use Enteco Polarizing Screens and Enteco Polarizing Filters with Still and Movie Cameras." (b) Leaflet: New Enteco data and information charts on close-up photography with supplementary lenses. (c) Leaflet: Revised edition of Enteco "Filter Information," handy filter factor and film speed chart, filter types. ENTECO INDUSTRIES.

17. (a) Booklet: "Take A Tip From Hollywood," describes Elgeet lenses, instructions on home movies, etc., 36 pp., illus.; 10¢. ELGEET OPTICAL COMPANY.

18. (b) Brochure: Steinheil lenses, wide angle, telephoto and movie lenses. (c) Brochure: Angenieux Lenses, complete information on construction, angles of view, relative magnification, range, focal length. (d) Catalog: "Equipment Information from Exakta," lists latest lenses recommended for the Exakta Camera, 28 pp., illus. 10¢. EXAKTA CAMERA COMPANY.

28. (b) Folder: How to Use Your Elitar Soligor Lens, descriptive information on Telephoto, Wide Angle, prices. INTERSTATE PHOTO SUPPLY.

31. (b) Chart: Shows test of Hexanon 50mm F 2.8 lens as used in the Konica II. KONICA CAMERA COMPANY.

52. (f) Booklet: "Zeiss Lenses For The Hasselblad Camera," detailed information and discussion of Zeiss lenses for the Hasselblad: 10pp, illus. WILLOUGHBY'S WHOLESALE.

54. (a) Booklet: Raptar 8mm cine lenses. (b) Booklet: Raptar 16mm cine; depth of field projection charts. (c) Booklet: "How to Have More Fun With Your Camera." WOLLENSAK.

61. (a) Circular: Slip-On Filters. (b) Circular: Hi-Trans Filters. (c) Circular: Auxiliary Close-up Lenses for all movie and still cameras. (d) Circular: Photar Filters. (e) Circular: Tiffen-Polaroid Light-Polarizing Filter. TIFFEN MARKETING CO.

PROJECTORS, SLIDE

5. (a) Booklet: How To Select A Slide Projector. AMERICAN OPTICAL.

21. (c) Folder: Describes Skan automatic "slide-cooling" projector, illus. G-M LABORATORIES, INC.

44. (a) Brochure: A complete listing of all regular View-Master Reels and Packets, including product prices. (b) Brochure: Stereo Today, a complete coverage of the View-Master Stereo System, information on products in this system. SAWYER'S, INC.

68. (a) Leaflet: Engineered projection equipment; data, details. VIEWLEX.

65. (a) Booklet: "How to Show Your Slides Without Losing Your Friends"; step by step procedure for building a slide program instead of a series of individual pictures. LA BELLE INDUSTRIES.

FLASH EQUIPMENT

1. (a) Booklet: Various styles of lighting equipment for still pictures, indoor movies and 3-D shots. (b) Folder: Describes use of multiple floodlamp control box, gives electrical facts affecting use of flood and flash lamps; 6pp. (c) Catalog: Photoflood Lighting, highly descriptive and illustrated 16-page booklet of lighting equipment for amateur and professional photographer. Includes lighting tips on indoor still and movie pictures with diagrams, charts, etc. ACME-LITE MFG. CO.

4. (a) Booklet: "How To Take Professional Flash Pictures With Your My-T-Myte Flashbulbs," 8pp., illus. AMPLEX.

13. (a) Booklet: "Light Makes the Picture, Synctron Takes It Better." (b) Booklet: Current technical data on Synctron models. (c) Catalog: Includes accessories, technical information, prices, individual specification sheet for each model. (d) Folder: "55 Quick Facts on Dry Battery and Dynascal Power." DORMITZER ELECTRIC COMPANY.

22. (a) Folder: "Triangle Lighting" formula for taking indoor pix with light. (b) Booklet: Photoflash Tips. (c) Bright Ideas-flash pix of parties, kids, adults. (d) Photolamp Data—lighting, exposure, film speed for flash, flood, other lamps. (g) Booklet: The M-2 Bulbs; data information on the "tiny" bulbs. GENERAL ELECTRIC.

23. (b) Folder: Graflite. (c) Folder: Stroboflash. GRAFLEX.

24. (a) Booklet: "Strobonar Units," 16pp., illus. (b) Booklet: "Synchro-Mite," 8pp, illus., flash units. (c) Booklet: Professional Flash Synchronizers; including solenoids, reflectors, battery cases; 16pp, illus. (d) Booklet: "Synchro Units"; 8pp., illus. (e) Folders: 1. Fotoeye; 2. Koiled Kord; 3. Strobonar Six; 4. Strobonar Seven. HEILAND.

34. (c) Booklet: Minolta Jr. B-C Flash Gun. FR CORPORATION.

25. (a) Folder: Sun-Lite II; description and illus. on speedflash. (b) Folder: Sun-Lite 500, description and information, 6pp, illus. (c) Folder: Flash Saver, description, 4pp. (d) Manual: Sun-Lite II instruction booklet, detailed information on Sun-Lite II Portable Speed Flash, all 3 models; 20pp, illus; 25¢. HERSHEY MFG. COMPANY.

28. (a) Folder: Describes 3 models of electronic flash, Expert IV, Matador, Reporter I, prices. INTERSTATE PHOTO SUPPLY.

29. (b) Booklet: Secrets of Press Photographer, by Joe Costa. 20pp, illus. (c) Folders: Kalart Flash Equipment, BC-400 and Kalart Super Speed Flash. KALART COMPANY, INC.

35. (a) Booklet: Eveready Battery Engineering Bulletin on flash photography, 12pp. illus.; issued periodically. (b) Eveready Batteries, data, helpful information "B," "B-C" batteries. NATIONAL CARBON COMPANY.

36. (a) Leaflets: Technical information and data on use of the Megalume electronic flash. (b) Pamphlet: "Reciprocity Failure and the Determination of Exposure With Some Electronic Flash Equipment." NEMS-CLARKE, INC.

46. (a) Brochure: Listing of lighting equipment for semi-professional or advanced amateur. (b) Brochure: Complete listing of lighting equipment for the amateur and movie maker. (c) Booklet: "Indoor Photos Made Easy," how to do indoor lighting, 10pp, illus. SMITH-VICTOR CORPORATION.

47. (a) Folder: "Flash is Easy—Flash is Fun"; complete flash instruction for advanced, amateur, beginner. (b) Booklet: How to Take Better Pictures and Have More Fun With Flash; 32pp. illus. (c) Booklet: Color Flash with Box Cameras. (d) Booklet: How to Throw a Snapshot Party; 24pp, illus. (e) Card: Wallet Size, gives correct F-stops. (f) Brochure: Basic Lighting Placement, illus. (g) Specification Sheets: 1. Blue Dot Line; 2. Projection Lamps; 3. Darkroom and Enlarger Lamps; 4. Super-floods. SYLVANIA ELECTRIC.

8. (c) Exposure Guide: Pocket size, gives correct F-stops. BOLSEY CORPORATION OF AMERICA.

50. (b) Brochure: The ABC of Flash Photography; guide to how, when, why to use flash bulbs. (c) Brochure: Your guide to better pictures thru better lighting; comprehensive discussion of Westinghouse bulbs.

55. (a) Booklet: Descriptive data and information on Limelite "60"; 14pp., illus. (b) Folder: Describes Limelite Electronic Flash; 4pp. illus. LIMELITE CORPORATION.

57. (a) Brochure: 6pp., Mallory B-C Cartridges photo flash item; complete cross-reference unit to flash attachment; 50 units; Mallory B-C Mercury Cartridges. (b) Leaflet: Complete explanation of application of Mercury for foto-flas'. P.R. MALLORY & CO.

62. (a) Booklet: Electronic Flash. (b) Booklet: Brighter Way to Better Pictures, 16pp. FR CORPORATION.

PROCESSING EQUIPMENT AND MATERIALS

10. (a) Brochure: Illustrating design and function of Model 45M Enlarger, 24pp. (b) Leaflet: Additional uses of Model 45M Enlarger. (c) Pamphlet: Discusses characteristics and operation of Model 57MB. (d) Book: A Brief 73 Year History of Enlarger Design, 32pp. CHARLES BESELER COMPANY.

19. (a) Booklet: "How to Buy an Enlarger." FEDERAL MANUFACTURING AND ENGINEERING CORP.

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45. (b) Catalogs: Omega A-2, B-7, B-8, D-2, D-3, E-5; (One on each model specify which you want.) (c) Booklet: How To Buy The Right Enlarger. (d) Booklet: Omega Distortion Correction Attachment. SIMMON BROTHERS.

56. (a) Folder: Describes "Static Master," gives uses and prices, 3pp, illus. NUCLEAR PRODUCTS.

58. (a) Brochure: Discusses Lisco Cut Film Holder; gives data and information on exclusive features. LISCO PRODUCTS.

60. (a) Booklet: Clayton P-60 Fine Grain Developer; detailed instruction on use; 16pp, illus. CLAYTON CHEMICAL CORP.

64. (a) Booklet: Describes methods and materials for mounting transparencies for viewing and projecting. ERIE SCIENTIFIC CORP.

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68. (a) Catalog and Handbook: 18 pages, illustrated, Nega-File slide-cabinets, accessories. NEGA-FILE COMPANY.

EXPOSURE METERS

20. (a) Booklet: Catalog sheet and booklet describes original direct-reading, photo-electric exposure meter, reading directly in f: stops, with film speed charts. (b) Brochure: "Ideal Rangefinder," instructions for calibrating rangefinders. (c) Brochure: Catalog sheets, golf club selector guide, information on Long-Range Rangefinder and its uses. FEDERAL INSTRUMENT CORP.

21. (a) Circular: Describes the Skan Quick Meter, price, information. (b) Booklet: Technical data, information on use and care of Skan Meters, helpful hints, 24pp, illus. G-M LABORATORIES, INC.

22. (e) Leaflet: GE Exposure Meters, significant features which adopt one of three GE meters to specific requirements. (f) Booklet: Color Control Meter and Variable Color Filter; how to achieve full control of color. GENERAL ELECTRIC.

51. (a) Circular: Describes Model 735, the Weston Master II Exposure Meter and the Direct Reading Exposure Meter, Model 853. (b) Pamphlet: "Using Weston Exposure Meters With Polaroid Land Cameras." WESTON ELECTRICAL INSTRUMENT CORP.

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40. (a) Booklet: "New Super Quick-Set Universal Photographic Support," illustrates and describes new system for handling cameras and related accessories, 12pp. (b) Folder: "Whitehall Tripods." 6pp. illus. QUICK-SET, INC.

59. (a) Catalog: 12pp., illus—describes all types of camera bags and leather goods of use to the photographer, lists prices. J. B. PERRIN CO.

67. (a) Catalogue: 10 pages describing the complete list of products. TEST-RITE INSTRUMENT CO.

FILM, PAPER

3. (a) Booklet: Ilford Flat Films, 12pp, illus: information and technical data. (b) Brochure: Ilford Roll Films, data and description; 6pp. (c) Circular: Ilford Microphen Developer, how to use it, and what it does. ALCO PHOTO SUPPLY.

14. (a) Book: "DuPont Photographic Films"; gives detailed information on photographic films, papers, chemicals; fundamental elements of photography, 85pp. bibliography, well illustrated. 35¢. (b) Book: "DuPont Photographic Papers"; designed to assist in print making. Information on selection of proper paper and correct use, surface designation chart, formula section; 57pp, illus. 35¢. DUPONT & COMPANY.

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62. (j) Booklet: Special Adjustable Roll Film; FR CORPORATION.

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66. (a) Brochure: 4pp, illus., data, details. 35mm Opta-Vue hand viewer. OPTICS MANUFACTURING COMPANY.

62. (k) Booklet: Your Port-A-View; FR CORPORATION.

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43. (e) Booklet: Features of Shield 'N Vue Slide Projectors. REVERE CAMERA CO.

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Kay Wilter, from POPULAR PHOTOGRAPHY International Picture Contest

Good reproduction, left, of shot of two young friends was no accident. Print possessed ideal, reproducible qualities of wide range of gradations, good tone separation, and well-defined shadow detail.

The engraver had just returned a print to the newspaper editor; it had turned a reddish-purple under his arc lamps. But the editor simply threw up his hands and irately barked, "What's the matter with you guys? Can't you do anything right?"

This editor, as will be shown, was guilty of doing what is done all too frequently and unjustifiably to this neglected element in the field of photographic publication—the photoengraver: blaming him for not doing the impossible. The halftone man can only do his best with what the photographer provides and if it's an improperly fixed print, it will turn reddish-purple under the engraver's arc lamps. But I'd like to think that if the photographer knew what the photoengraver needed and wanted, they'd both be a lot happier and more satisfied.

First of all, of course, the photographer needs a good negative—one containing adequate contrast (a wide range of tonal values with good tonal separation), adequate density (neither too thin nor too dense), and good detail, particularly in the shadow areas. A negative with these qualities will produce an ideal print for reproduction.

As a general rule for newspaper reproduction, use a *white glossy* printing paper having a cold, bluish-black tone. Sometimes a few crystals of potassium bromide in the print developer helps maintain this quality. A glossy paper helps us to preserve as much detail as possible, whereas a matte paper tends to cause reflections to be picked up from the sides of the surface irregularities. (However, many magazines will accept nonferrotyped prints on glossy paper.) A cream-tinted paper will give a creamy highlight. This means that in order to get a good dot in the highlights so much exposure is necessary that the entire print inclines to gray out.

It's a good idea to immerse your prints in a solution of glycerin and water before ferrotyping. There will be less danger that the print will crack and it will be much easier to place under the copyboard glass. And watch those old ferrotype plates that may have scratches. Hold the

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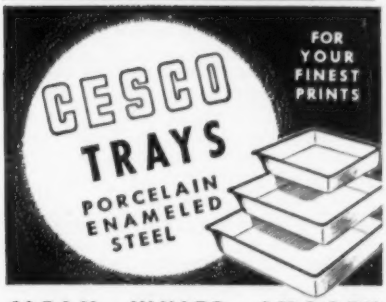

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finished print up to the light at various angles; if there are scratches on the plates, they'll be on the print—and in the reproduction!

Naturally the detail present in the negative must appear in the print. To determine whether or not a print has sufficient detail, hold it up to a strong light and look through it. If the detail doesn't show up, the print must be made over again.

We'd like to see photographers standardize their own margins; that way, we would often get a break when shooting more than one photograph at the same proportion. If it's necessary to paste caption material onto the back of a print, affix the paper along the bottom, letting the typewritten portion hang below. Any material pasted across the center tends to gather a print into wrinkles that will cause undesirable reflections.

Obviously the old idea that all a print needed for reproduction was contrast is not so. If there's one thing we can usually give a print, it's contrast. But the weak point in halftone photography is maintaining all of the detail in the original. So—give us plenty of gradations and well-defined tonal values, balanced with sparkling (but not chalky) highlights and detailed shadows and we should all live happily ever after.—

CANDID SHOTS
by the Editors

(*Continued from page* 56)

especially interested in pictures of Clara Barton in action during the Johnstown flood, the Galveston tidal wave, the Sea Island hurricane of 1893, the yellow-fever epidemic of 1859, and the Spanish American War. The Red Cross asks that rare photographs be sent by registered mail to Chief Librarian, American National Red Cross, Washington 13, D. C. Negatives, if available, will be particularly valuable. They will make copies of all photographs received and return originals immediately. If you have access to a trunkful of old pictures, here's a chance to make a little extra contribution to one of the world's best causes.

Correction: Water Color Stamps

In Murray Zinn's story, *Touch Up Your Color Slides*, in the March issue, the recommended coloring material was Kodak Transparent Water Color Stamps. This product was generally available at the time the article was written, but we are informed that Kodak ceased to manufacture the stamps in June, 1955. Another product, which can be used in the same way, is Webster Photocolors, manufactured by Webster Bros. Laboratory, 53 West Jackson Blvd., Chicago 4, Ill.—

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How to Photograph Children

(*Continued from page* 68)

becomes a small dot says nothing about the baby. I try to keep the baby's head within one third my negative area. The closer you get, the better your final print can be because it does not require extreme enlargement.

However, I want to caution against getting *too close*. If you are too near the child you may distort his features.

Once you have all these elements under control, you are ready to take your picture. But it isn't just that easy. You must keep these things in mind.

1) *Baby must be psychologically fit.* First of all, make sure that you arrange the sitting for a time when the child is neither hungry nor tired.

2) *Let the child get used to the photographic setup.* When the child is more at ease, maneuver him into shooting position.

3) *Have a warm-up period before you start shooting.* The "warm-up" period will differ, depending on the child's age. Most likely, you know right now what things will amuse your child. Use them to get him in a good humor. The better he feels, the easier it will be to photograph him.

If the child does not respond to your old tricks, be ready with some new devices. Here are a couple I use. (Before you read on, you had better be warned. You cannot keep your dignity and also entertain a child. Remember, anything goes in order to get the right expression.)

With a one-year-old you can pile cardboard boxes on your head and then let them fall off. With older children you can resort to "mental" games. I like to startle them with a question like, "What word am I thinking of?" With an infant a quick stroke with the nipple of a bottle across the upper lip usually results in a unique expression.

4) *Shoot at the peak of action.* Never get so involved with your attention-getting game that you miss the child's expression when it is at its best. Gesture with one hand and have the other ready on the shutter release.

5) *Keep props small and simple.* Large props will detract from the child. If they are too large and difficult for the child to handle, they will create an awkward pose.

6) *Don't move your equipment; instead, maneuver the child.* If the child should move out of the area of focus, don't start pushing all your equipment around. Instead, coax your child into the right position. You can do the coaxing with games, food, and toys.

If the child decides he wants something that's on your dresser, don't try to talk him out of it, but give it to him. Accommodation will pay off in the long run and maybe the child will come up with a better prop than you yourself thought of.

These are my suggestions and I hope they will help you. Probably the most important thing in child photography is experience. You can only get that by yourself. If you aren't satisfied with the pictures you get after your first shooting session, set up another session.—■

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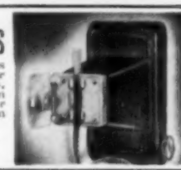

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... See the Stars, Moon, Planets Close Up!

ASSEMBLE A BIG 100 POWER 3" REFLECTING TELESCOPE

... with this Complete 87 Piece "Do-it-yourself" Kit

KIT INCLUDES ...

- 3" f/10 Aluminized and Overcoated Spherical Mirror
- 60X Eyepiece and 100X Barlow Lens
- Crossline Finder
- Sturdy 40" Tripod
- Fork type Equatorial Mount with Locks on Both Axes
- Ventilated 3" Mirror Mount
- Heavy Wall, Black Telescope Tube

▶ This is an actual photograph of the moon taken through our Astronomical Telescope by a 17-year-old student.

Everything You Need! No Machining! Easily Assembled! We furnish complete, simple instructions.

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(Shipping weight—10 lbs.)

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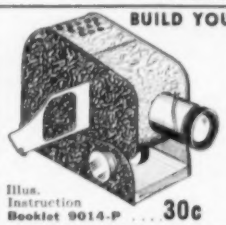

Thousands of our customers have made their own projectors. Excellent results! Money saved! NOTE: We do not furnish metal parts except Kit #50,104-P contains mounted projection lens and focusing tube.

STOCK NO. 50,104-P ..... **$6.50** pstpd.
Contains F/3.5 anastigmat projection lens in focusing tube, 2 condensers, heat absorbing glass, full instructions.

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40,043-P	5 x 7"	3.15 Pstpd.
40,067-P	8 x 10"	5.50 Pstpd.

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Take Pictures at Night—in Movies, etc.

Fasten it over your flash reflector as an infra-red light source. For use with infra-red camera attachments, telescopes, etc. Light from your light source is filtered so that only infra-red light hits subjects. 5⅝" diam., 1/8" thick.

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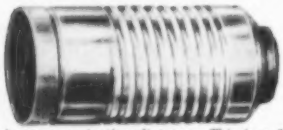
PORTABLE 35MM SLIDE VIEWER

Projection Type! Build it yourself. Write for FREE PLAN SHEET—and list of available parts! Send your name and address—request Bulletin 35-P.

f/1.4 16mm MOVIE PROJECTION LENS



F. L. only 1" . . . or 1/2 that of standard 16mm projecting lens. Gives you a big picture—4 times the size normally obtained in same projecting distance. This is a 6 element coated lens manufactured for use in an expensive Juke Box Projector. Would normally retail for about $30.00. Lens unit mounted in a standard sleeve with an O. D. of 1 5/16" which fits most 16mm projectors. Brass tubing available to change O. D. for adapting to other sizes from 1" to 1 1/2". Direction sheet included. Back of this lens must come to within 5/16" of film. Excellent for making your own projector taking Viewmaster-size film, or for making a contour projector.

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Sleeve Adapter, 1" O. D.
Stock No. 40,126-P ..... **$1.00 Pstpd.**

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$200 Value for Only $12.50 Postpaid

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Easy to follow—accurate—8 1/2 x 11 page size—many illustrations. Do-it-yourself—Save! and have Fun!

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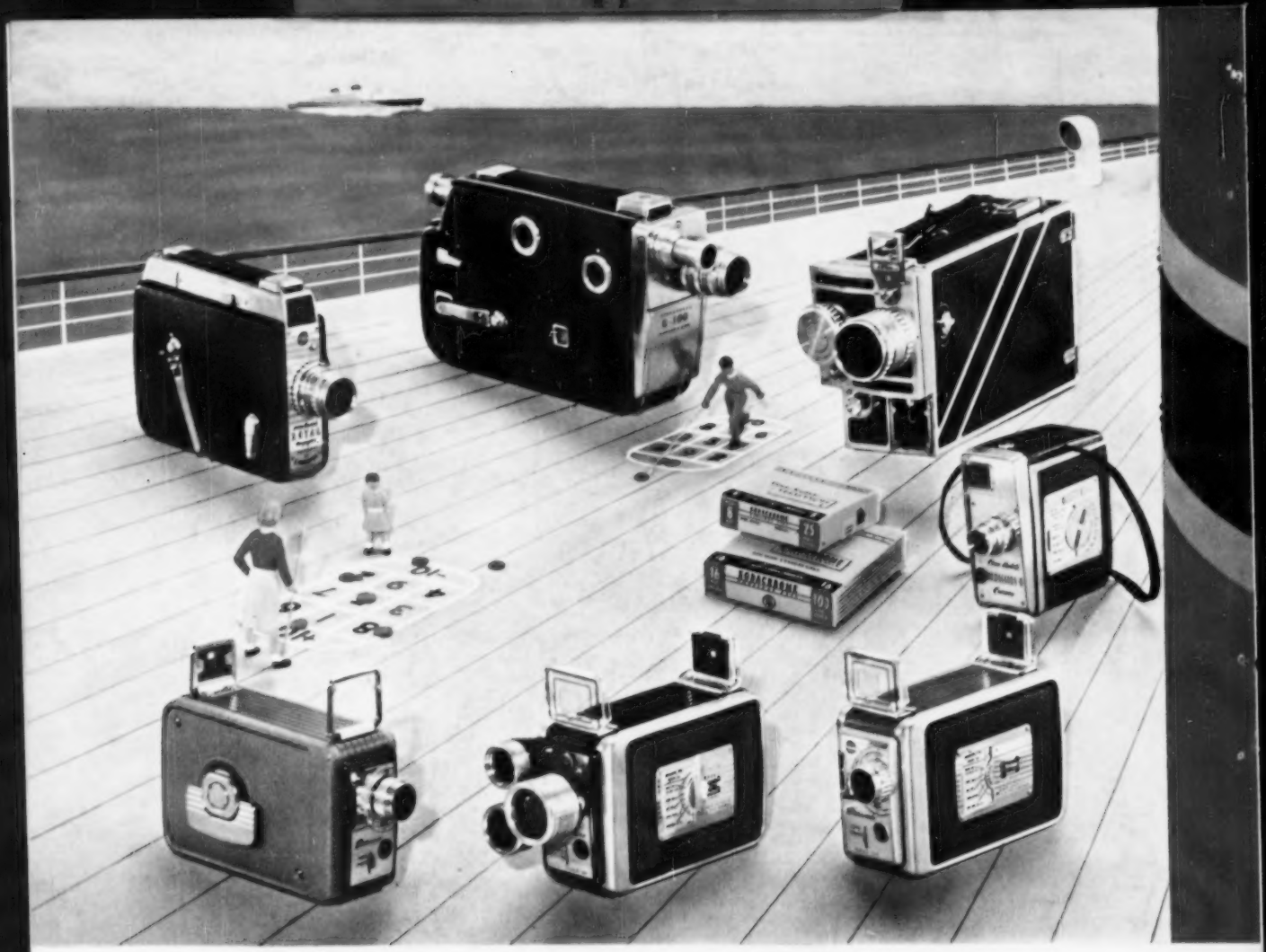

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